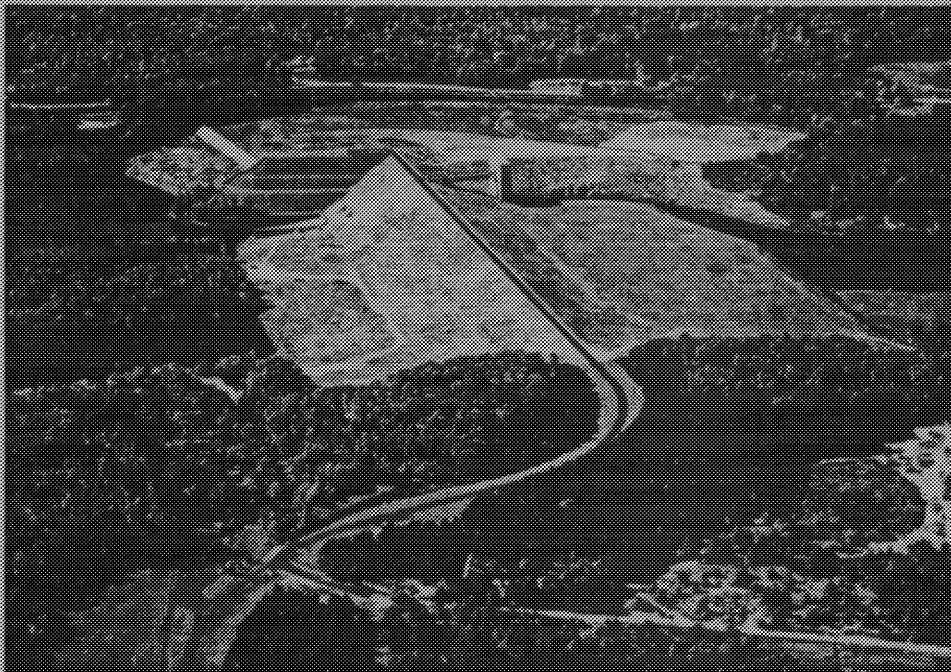

MASTER PLAN

FRANKLIN FALLS PROJECT

**Bristol, Franklin, Hill, New Hampton,
Sanbornton, NEW HAMPSHIRE**



September 1997



US Army Corps
of Engineers
New England District

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE September 1997		3. REPORT TYPE AND DATES COVERED Final Report October 1997-September 2002
4. TITLE AND SUBTITLE Master Plan - Franklin Falls Project Bristol, Franklin, Hill, New Hampton, Sanbornton, New Hampshire			5. FUNDING NUMBERS	
6. AUTHOR(S) Charles L. Joyce and U.S. Army Corps of Engineers Construction/Operations Division staff and Evaluation Branch staff				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Corps of Engineers New England District 424 Trapelo Road Waltham, Massachusetts 02254-9149			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Corps of Engineers Construction/Operations Division			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The "Master Plan - Franklin Falls Project" is one of a series of master plans for New England District Projects.				
12a. DISTRIBUTION AVAILABILITY STATEMENT Approval for public release; Distribution is unlimited.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) The Master Plan for the Franklin Falls Project covers approximately 3,669 acres of land and water resources within the limits of U.S. Government owned land over the ensuing five year horizon from 1 October 1997 to 30 September 2002. The Master Plan prescribes an overall land and water management plan, resource objectives, and associated design and management concepts that will provide the best possible combination of responses to regional needs, resource capabilities, and expressed public interest and desires consistent with the authorized project purpose. The Master Plan covers all of the resources, including but not limited to, fish and wildlife, vegetation, cultural, aesthetic, interpretive, recreational, mineral, commercial and outgranted lands, easements, and water. The planning process has identified opportunities for the redevelopment and enhancement of facilities to support intensive recreational use, establishment or enhancement of boat launching facilities, picnic areas, visual access to selected exemplary natural communities and a proposed forest management demonstration area, and wildlife habitat. It also includes consideration of the feasibility of constructing an extension of the snowmobile, hiking, and cycling networks across the Franklin Falls Dam, and the enhancement of the public assistance program to attract more visitors to the facilities at the Franklin Falls Project.				
14. SUBJECT TERMS Master Plan, Franklin Falls Project, Franklin Falls			15. NUMBER OF PAGES 157	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

CENAE-EP-PP (1105-2-10)

30 October 1997

Joyce/kab/78554

MEMORANDUM FOR Commander

SUBJECT: Submittal of Master Plan - Franklin Falls Project, New Hampshire, dated September 1997

1. In accordance with ER 1130-2-550 (15 November 1996), district commanders are responsible for approving master plans, supplements, and updates.
2. The subject Master Plan is enclosed for your review and approval. The previous Master Plan for Reservoir Development, Franklin Falls Reservoir, New Hampshire, dated July 1966 is rescinded.
3. The Master Plan prescribes an overall land and water management plan, resource objectives, and associated design and management concepts that will provide the best combination of responses to regional needs, resource capabilities, and expressed public interest and desires consistent with the authorized flood control function of the Franklin Falls Project.
4. The plan has been prepared in cooperation with the Construction/Operations Division, which concurs with the Master Plan.

Encl



RICHARD D. REARDON, P.E.
Chief, Engineering/Planning Division

cf:

Mr. Joyce, 114S(doc:mpffdeap.wpd)
Eng/Plng Files, 114S

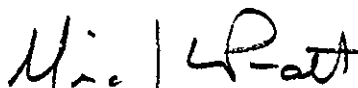
CENAE-EE 1st End

DATE: 10 Nov 97

FOR Chief, Engineering/Planning Division

APPROVED: MP

DISAPPROVED _____



MICHAEL W. PRATT
LTC, EN
Commanding

MASTER PLAN

FRANKLIN FALLS PROJECT
Bristol, Franklin, Hill, New Hampton, Sanbornton,
NEW HAMPSHIRE
(1October 1997 - 30 September 2002)

SEPTEMBER 1997
U.S. ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT

EXECUTIVE SUMMARY

The Master Plan for the Franklin Falls Project covers approximately 3,669 acres of land and water resources within the limits of U.S. Government owned land over the ensuing five year horizon from 1 October 1997 to 30 September 2002. The Master Plan prescribes an overall land and water management plan, resource objectives and associated design and management concepts that will provide the best possible combination of responses to regional needs, resource capabilities and expressed public interest and desires consistent with the authorized project purpose. The scope of the Master Plan covers all of the resources, including but not limited to, fish and wildlife, vegetation, cultural, aesthetic, interpretive, recreational, mineral, commercial and outgranted lands, easements, and water.

Inputs to the planning process were: surveys, management plans for natural, wetlands and cultural resources, as well as, the analyses of recreational capacities and projected needs for project lands. Natural and man-made resources were located, identified and analyzed, including wetlands, exemplary natural communities, and cultural resources that require particular management practices for their protection. These were integrated into a series of project-wide and compartmental objectives to protect and enhance all of the resources in the project area and promote and develop, as appropriate, those resources of interest for public use, education, and visual access.

Recreational opportunities have also been identified through an analysis of regional needs and a public participation process. The planning process has identified opportunities for the redevelopment and enhancement of facilities to support intensive recreational use, establishment or enhancement of boat launching facilities, picnic areas, visual access to selected exemplary natural communities and a proposed forest management demonstration area, and wildlife habitat. In addition, the Master Plan includes consideration of the feasibility of constructing an extension of the snowmobile, hiking and cycling networks across the Franklin Falls Dam and the enhancement of the public assistance program to attract more visitors to the facilities at the Franklin Falls Project.

Table of Contents

	<u>Pg.No.</u>
EXECUTIVE SUMMARY	ES-1
ABBREVIATIONS	v
I. INTRODUCTION	1
1.1 Project Authorization and Purpose	1
1.2 Master Plan	1
1.2.1 Goal	1
1.2.2 Project Purpose	2
1.2.3 Master Plan Scope	2
1.2.4 Planning Process	3
1.2.5 Reevaluation of Master Plan	4
1.2.6 Application of Federal Laws	4
1.2.7 Corps of Engineers Guidance	7
1.2.8 Pertinent Reports	8
II. DESCRIPTION OF AUTHORIZED PROJECT	10
2.1 Location	10
2.2 Project Description	10
2.2.1 Facilities	10
2.2.2 Project Operations	10
2.2.3 Land Acquisition and Outgrants	11
2.2.4 Reservoir Management	11
2.2.5 Relationship to Other Projects	14
2.2.6 Water Storage	15
2.2.7 History	15
2.2.7.1 Prehistoric Era	15
2.2.7.2 Historic Era	16
2.3 Topography	17
2.4 Climate and Hydrology	17
2.5 Transportation	18

	<u>Pg No.</u>
III. RESOURCE INVENTORIES AND ANALYSIS	19
3.1 Introduction	19
3.2 Natural Resources	19
3.2.1 Geological Resources	19
3.2.2 Surface Waters and Wetlands	21
3.2.3 Vegetative Cover	24
3.2.3.1 Forest lands	24
3.2.3.2 Open Land (Grass and Old Fields)	25
3.2.3.3 Developed Areas	26
3.2.3.4 Exemplary Natural Communities	26
3.2.3.5 Natural Communities of Local Significance	27
3.2.4 Wildlife	29
3.2.5 Fish	30
3.2.6 Rare or Protected Species	31
3.3 Archaeological Resources	32
3.3.1 Historic and Archaeological Resources	32
3.3.2 Prehistoric Resources	33
3.3.3 Historic Resources	34
3.3.4 Identified Historic Sites	34
3.3.5 Unidentified Documented Historic Sites	35
3.4 Recreation Resources	35
3.4.1 Suitability of the Reservoir for Recreational Use	35
3.4.2 Natural and Scenic Qualities	36
3.4.3 Existing and Potential Recreational Activities	36
3.4.4 Visitations	38
3.4.5 Area of Influence	38
3.4.6 Regional Demands	39
3.4.7 Regional Demands on Franklin Falls and Blackwater Project Facilities	39
3.4.7.1 Softball, Baseball Fields, Outdoor Basketball and Playgrounds	41
3.4.7.2 Hiking and Snowmobile Trails	41
3.4.7.3 Picnic Tables	41
3.4.7.4 Boat Launches	42
IV. PUBLIC INVOLVEMENT AND COORDINATION	43

	<u>Pg. No.</u>
V. RESOURCE MANAGEMENT OBJECTIVES	44
5.1 Introduction	44
5.2 Project-wide Objectives	44
5.2.1 Natural Resources	44
5.2.2 Cultural Resources	45
5.2.3 Recreation Resources	46
5.3 Specific Objectives for Management Units	47
5.3.1 Compartment 1	49
5.3.2 Compartment 2	51
5.3.3 Compartment 3	52
5.3.4 Compartment 4	53
5.3.5 Compartment 5	55
5.3.6 Compartment 6	56
5.3.7 Compartment 7	57
5.3.8 Compartment 8	58
5.3.9 Compartment 9	59
5.3.10 Compartment 10	60
5.3.11 Compartment 11	61
5.3.12 Compartment 12	62
VI. LAND ALLOCATION AND CLASSIFICATION	63
6.1 Land Allocation	63
6.2 Land Classification	63
6.2.1 Project Operations	63
6.2.2 Intensive Recreation	63
6.2.3 Mitigation	64
6.2.4 Environmental Sensitive Areas	64
6.2.5 Multiple Resource Management	64
6.2.6 Easement Lands	64
VII. RESOURCE DEVELOPMENT PLANS	65
VIII. CONCLUSIONS	67
IX. RECOMMENDATION	68

LIST OF TABLES

OF TABLES		<u>Pg.No.</u>
Table 1	Management Responsibilities for Project Lands	12
Table 2	Land Cover	20
Table 3	Wetlands Acreages by Type	23
Table 4	Attendance in Visitor Hours	38
Table 5	1993 Recreational Facility Needs Ranking and Projections 2000, 2002, 2005	40
Table 6	Summary of Natural Communities and Wetlands	48

LIST OF FIGURES

OF FIGURES		<u>After Pg.</u>
Figure 1	Site Plan	1
Figure 2	Franklin Falls Project/Blackwater Project Outdoor Recreation Market Areas	38
Figure 3	Land Classification	63
Figure 4	Development Opportunities	65

APPENDICES

APPENDIX A	FRANKLIN FALLS PROJECT FOREST AND WILDLIFE INVENTORIES
APPENDIX B	EXEMPLARY NATURAL COMMUNITIES AND NATURAL COMMUNITIES OF LOCAL SIGNIFICANCE
APPENDIX C	WETLANDS SURVEY FOR THE FRANKLIN FALLS PROJECT FLOOD CONTROL FACILITIES
APPENDIX D	SOIL CONDITIONS AT THE FRANKLIN FALLS PROJECT FOR RECREATIONAL DEVELOPMENT
APPENDIX E	PERTINENT CORRESPONDENCE

ABBREVIATIONS

ATV	All Terrain Vehicle
BW	Blackwater Project
CENAE	Corps of Engineers, New England District
cfs	cubic feet per second
DRED	New Hampshire Department of Resources and Economic Development
FF	Franklin Falls
GOES	Geostationary Operational Environment Satellite
L&WCF	Land and Water Conservation Fund
MSL	Mean Sea Level 1929 datum (also referred to as NGVD)
NH DF&L	New Hampshire Division of Forests and Lands
NHFG	New Hampshire Fish and Game Department
NH NHIP	New Hampshire National Heritage Inventory Program
NH SHPO	New Hampshire State Historic Preservation Officer
OMP	Operational Management Plan
PSNH	Public Service Company of New Hampshire
RCC	Reservoir Control Center
RVFMP	Recommended Voluntary Forest Management Practices
SPNHF	Society for Protection of New Hampshire Forests
TBD	To be determined

USACE	United States Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VERS	Visitor Estimating and Reporting Service

I. INTRODUCTION

1.1 Project Authorization and Purpose

The Franklin Falls Project was authorized by Congress on 22 June 1936 through the Flood Control Act of 1936 (PL 74-738) as amended by the Flood Control Act of 1938 on 28 June 1938 (PL 75-761) as a unit of a coordinated system of reservoirs including Hopkinton-Everett, Blackwater and Edward Mac Dowell Lakes for controlling flooding in the Merrimack River Basin. The Merrimack River and its tributaries flow through New Hampshire and Massachusetts. Construction of the dam was started in November 1939 and completed in October 1943 at a cost of \$7,950,000. The dam and reservoir include approximately 3,669 acres of land and water, which are divided into twelve compartments for planning, administrative and management purposes. See Figure 1.

Authorization for development and use of the reservoir area for public recreation and other purposes is contained in Section 4 of the Flood Control Act of 1944 (Public Law 534, 78th Congress), as amended.

1.2 Master Plan

1.2.1 Goal

According to EP 1130-2-550 (15 November 1996), the primary goals of the Franklin Falls Project Master Plan are to provide a concept document to prescribe an overall natural, cultural and manmade resources management plan, resource objectives, and associated design and management concepts consistent with the authorized project purpose, which:

- (a) Provide the best combination of responses to regional and ecosystem needs, project resource capabilities and suitabilities, and expressed public interests and desires;
- (b) Contribute towards providing a high degree of recreation diversity within the region;
- (c) Emphasize the particular quantities, characteristics, and potentials of the project;
- (d) Exhibit consistency and compatibility with national objectives and other state and regional goals and programs.

1.2.2 Project Purpose

ER 1130-2-540 establishes policy for the administration and management of the natural resources activities at US Army Corps of Engineers (USACE) civil works water resources projects and establishes the following program objectives:

- (a) To manage natural resources on USACE administered land and water in accordance with ecosystem management principles, to ensure their continued availability,
- (b) To provide a healthful environment for project visitors.

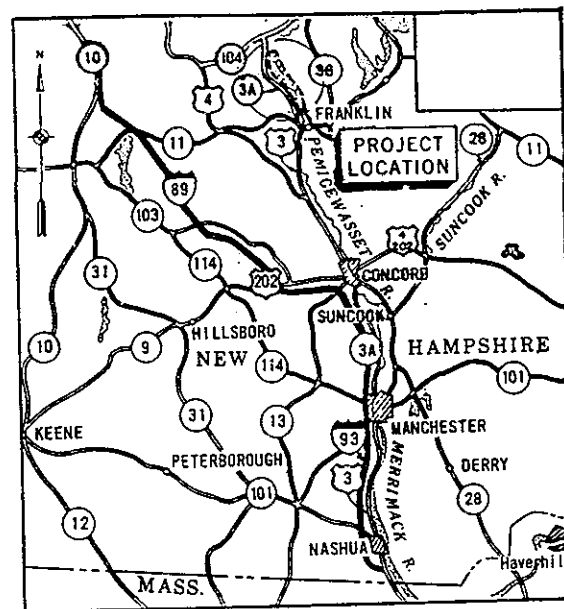
ER 1130-2-550 establishes the policy for the administration and management of USACE recreation programs and facilities at civil works water resources projects and establishes the following program objectives:

- (a) To provide a quality outdoor recreation experience which includes an accessible, safe and healthful environment for a diverse population,
- (b) To increase the level of self sufficiency for the Corps recreation program,
- (c) To provide outdoor recreation opportunities on Corps administered land and water on a sustained basis, and
- (d) To optimize the use of leveraged resources to maintain and provide quality public experiences at Corps water resources projects.

1.2.3 Master Plan Scope

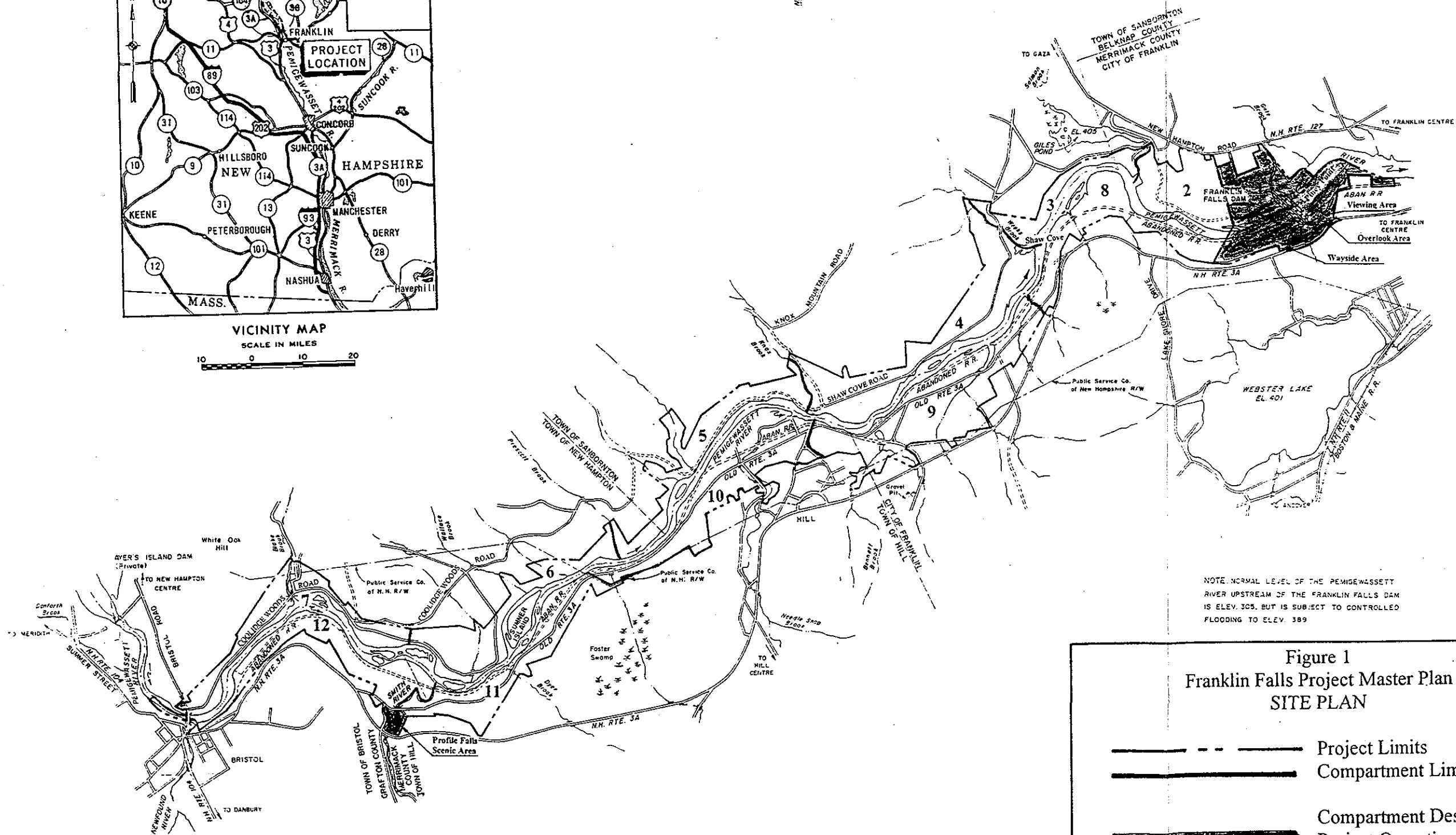
The Master Plan will prescribe an overall land and water management plan, resource objectives and associated design and management concepts that will provide the best possible combination of responses to regional needs, resource capabilities and expressed public interest and desires consistent with the authorized project purpose. The scope of the Master Plan covers all of the resources, including but not limited to, fish and wildlife, vegetation, cultural, aesthetic, interpretive, recreational, mineral, commercial and outgranted lands, easements, and water.

The Master Plan covers approximately 3,580 acres of land and water resources within the limits of U.S. Government owned land over the ensuing five year horizon from 1 October 1997 to 30 September 2002. It is a flexible planning document in order to permit modification as warranted by future conditions. Approval of this Master Plan



VICINITY MAP

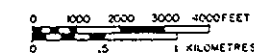
SCALE IN MILES



NOTE: NORMAL LEVEL OF THE PEMIGEWASSET RIVER UPSTREAM OF THE FRANKLIN FALLS DAM IS ELEV. 305, BUT IS SUBJECT TO CONTROLLED FLOODING TO ELEV. 389

Figure 1
Franklin Falls Project Master Plan
SITE PLAN

- Project Limits
- Compartment Limits
- Compartment Designation
- Project Operations/Profile Falls



will rescind the Franklin Falls Reservoir - Master Plan for Reservoir Development dated July 1966.

1.2.4 Planning Process

An interdisciplinary team consisting of Corps of Engineers, New England District staff (Planning Branch, Construction/Operations Division, Merrimack River Basin and Franklin Falls and Blackwater Projects) and New Hampshire Department of Resources and Economic Development (DRED) staff provided the principal inputs to the Master Plan. The team included the following disciplines:

- (a) planning, civil engineering, economics
- (b) landscape architecture
- (c) forestry
- (d) environmental resources
- (e) biology
- (f) archaeology, cultural resources

Inputs to the planning process were: surveys and management plans for natural, wetlands and cultural resources and the analyses of recreational capacities and projected needs for project lands. These were integrated into a series of project-wide and compartmental objectives to protect and enhance all of the resources in the project area and promote and develop, as appropriate, those resources of interest for public use, education and visual access.

Also, areas of potential public interest for recreational development were identified. The implementation of these will depend largely on partnerships with local, regional and state entities.

Public input into the master planning process was facilitated through public notices, coordination with local, regional, and state officials, a meeting with the public to discuss and receive input to the plan, and a posting of the draft Master Plan in easily accessible places for the public's review and comment.

The Master Plan is a policy document that serves as an overall management guide while specific management recommendations are reserved for the project's

Operational Management Plan (OMP). The OMP must be consistent with the Master Plan. Following completion of the Master Plan, the OMP will be revised to describe in detail how the objectives and concepts prescribed in the Master Plan will be implemented and achieved.

1.2.5 Reevaluation of Master Plan

The Master Plan is a flexible planning document that will be periodically reevaluated and kept up to date. It will be reviewed every five years and revised as required. The district engineer will approve supplements and revisions to the Master Plan.

1.2.6 Application of Federal Laws

Master Plans are required for civil works projects and other fee-owned lands for which the Corps has administrative responsibility for management of their natural and manmade resources. The following federal laws and directives apply to the preparation and update of the Master Plan for the the Franklin Falls Project:

- (a) **Historic Sites, Buildings and Antiquities Act of 1935** (16 U.S.C. 461- 467). Known as the Historic Sites Act, this Act declared it a national policy to preserve historic sites and objects of national significance, including those located on refuges. It provides for designation, acquisition, administration, and protection of such sites. (Additionally, National Historic Landmarks are designated under authority of this Act.)
- (b) **Public Law 78-534 (The Flood Control Act of 1944)**, as amended by the Flood Control Acts of 1946, 1954, 1960 and 1962, authorizes the Corps of Engineers to construct, operate and maintain public park and recreation facilities at water resource development projects, and to permit local interests to construct, operate and maintain such facilities.
- (c) **Public Law 85-624 (The Fish and Wildlife Coordination Act)** requires that the Corps and any agency impounding, diverting, or controlling water, consult with the United States Department of the Interior, Fish and Wildlife Service. The Department of the Interior would evaluate proposed water resources development measures, and determine potential impacts to wildlife resources and measures needed to prevent such impacts.
- (d) **Reservoir Salvage Act of 1960** (16 U.S.C. 469-469c). This Act is also known as the Archaeological and Historic Data Preservation Act, Archaeological and

Historic Preservation Act, "Moss-Bennett Act", and the Archaeological Recovery Act. When enacted in 1960, this law simply authorized the Secretary of the Interior to conduct salvage archaeology in advance of dam and reservoir construction by the Corps of Engineers and other agencies. In 1974, it was amended comprehensively to authorize salvage in connection with all kinds of federal, federally assisted, and federally licensed projects. As amended, it also directs federal agencies to cooperate with the Department of the Interior in conducting salvage, or to fund such work themselves, and to report to Interior on archaeological programs and any disturbance of archaeological sites.

- (e) **Public Law 86-717 (Forest Cover Act, 6 September 1960)** provided a statutory mandate for multiple use forest management, or other vegetative cover management, on project land and waters.
- (f) **Public Law 89-72 (The Federal Water Project Recreation Act of 1965)**, accompanied by House Committee Report No. 254, requires that the Corps of Engineers and other federal agencies give full consideration to fish and wildlife enhancement. It also provides for non-federal participation in land acquisition, and in the development and management of recreational facilities and fish and wildlife resources.
- (g) **Public Law 89-665 (The National Historic Preservation Act of 1966)**, as amended in 1992, directs the Corps of Engineers and other federal agencies to provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the Nation.
- (h) **Public Law 91-190 (The National Environmental Policy Act of 1969)**, directs the Corps of Engineers and other federal agencies to prepare environmental impact statements or assessments that describe the environmental effects of proposed projects and measures necessary to minimize any adverse effects.
- (I) **Public Law 91-604 (The Clean Air Act, as amended)**, specifies that any federal activity, which may result in discharge of air pollutants, comply with federal, state, interstate, and local requirements concerning control and abatement of air pollution.
- (j) **Public Law 03-205 (The Endangered Species Act of 1973, as amended)**, requires federal agencies to utilize their authorities to carry out programs for conservation of endangered and threatened species protected by the Act.

- (k) Executive Order 11988 (**Floodplain Management**, 24 May 1977) requires that the Corps of Engineers and other federal agencies prevent avoidable adverse or incompatible developments in floodplains by assessing proposed actions, considering alternative approaches when adverse effects would result, and formulating designs and project modifications to minimize impacts.
- (l) Executive Order 11990 (**Protection of Wetlands**, 24 May 1977) requires that all federal agencies take action to minimize destruction, loss, or degradation of wetlands. It stipulates that federal agencies must avoid providing assistance for new construction located in wetland unless no practicable alternatives exist, and the proposed action includes measures to minimize harm to wetlands.
- (m) Public Law 95-217 (**Clean Water Act of 1977, as amended**). Section 404 imposes requirements with respect to dredge and fill activities in waterways of the United States, including wetlands. Any fill activities in wetlands must comply with Section 404(b)(1), Guidelines for the Specification of Disposal Sites for Dredge or Fill Material. These guidelines allow fill activities for only the least environmentally damaging practicable alternative.
- (n) Public Law 95-341 (**American Indian Religious Freedom Act of 1978 AIRFA**). This act formalizes a policy whereby federal agencies will preserve the inherent right of American Indians to express and exercise their traditional religions. These rights include access to sites (which may be on federal lands), use and possession of sacred objects and the freedom to worship through ceremonial and traditional rites. The Act requires agencies to consult with Native American groups, but agencies need not accede to Native American requests.
- (o) Public Law 96-95 (**Archaeological Resources Protection Act of 1979 (ARPA)**). This statute provides protection for archaeological resources requiring any interested parties to apply for a permit from the controlling federal agency to excavate, or remove any archaeological resource located on public or Indian lands. The Act also provides for civil and criminal penalties for individuals disturbing or looting sites (including military personnel that allow such actions).
- (p) Public Law 101-601 (**Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)**). This act requires federal agencies to inventory and repatriate certain Native American cultural items recovered from federal property to associated Native American groups. These items are human

remains, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony. The Act describes in detail the items included in these classifications and the procedure for repatriation. The Act also provides for the inadvertent discovery of Native remains and objects. If related to an activity on federal land such as construction, logging, and agriculture to name a few, such activity must cease until proper notification is conducted.

- (q) **Advisory Council on Historic Preservation, Protection of Historic Properties (36 CFR 800).** These are the implementing regulations which govern the Section 106 review process established by the National Historic Preservation Act of 1966, as amended for federal agencies. In essence, it implements the process by which we are required to assess a federally approved, assisted, or funded undertaking and its effect upon properties which are or may be eligible for listing on the National Register of Historic Places.
- (r) **National Register of Historic Places, Nominations by States and Federal Agencies (36 CFR 60).** These regulations govern the process whereby state and federal agencies would nominate specific resources under their control to the National Register which is the country's basic inventory of historic resources and is maintained by the Secretary of the Interior. This inventory includes buildings, structures, objects, sites, districts, and archaeological resources which may be significant at the national, state, or local levels.

1.2.7 Corps of Engineers Guidance

The Master Plan has been prepared in accordance with guidance contained in the following Corps regulations, pamphlets, and manuals:

ER 1130-2-438	Historic Preservation Program
ER 1130-2-540	Environmental Stewardship Operations and Maintenance Policies
ER 1130-2-550	Recreation Operations and Maintenance Policies
ER 1165-2-400	Recreation Planning, Development and Management Policies

ER 1130-2-500	Project Operations, Partners and Support, Work Management Policies
EP 1130-2-540	Environmental Stewardship Operations and Maintenance Guidance and Procedures
EP 1130-2-550	Recreation Operations and Maintenance Guidance and Procedures
EP 1130-2-500	Project Operations, Partners and Support, Work Management Guidance and Procedures
EM 1110-1-400	Recreation Planning and Design Criteria

1.2.8 Pertinent Reports

- Atwood, Kathleen A. And Paiva, Marcos A. and the Public Archaeology Laboratory, Inc., Archaeological Reconnaissance /Inventory Survey. Cultural Resources Management Plan. Franklin Falls Dam. Bristol. Hill. New Hampton. and Sanbornton. New Hampshire, September 1996.

- Bolian, Charles E. and Gengras, Justine B., Report on Phase IB and Phase II Archaeological Investigations of the Camp Sargent Road Relocation and an Associated Wetland Mitigation Project, 1991.

- Coler & Colantonio, Inc., Wetland Survey for the Franklin Falls Dam Flood Control Facilities, 4 February 1997.

- Corps of Engineers, New England Division, Recreational and Natural Resources at Corps Flood Control Projects in New Hampshire, March 1994.

- Corps of Engineers, New England Division, Operation Management Plan for Franklin Falls Dam, 24 June 1993.

- Corps of Engineers, New England Division, Forest Management Plan - Franklin Falls Dam, March 1982.

- Corps of Engineers, New England Division, Franklin Falls Reservoir - Master Plan for Development, July 1966.

- New Hampshire Natural Heritage Program/ The Nature Conservancy, Department of Resources and Economic Development and New Hampshire Fish and Game Division, Nongame and Endangered Wildlife Division, A Natural Features Survey of the Franklin Falls Dam Property, December 1996.

- New Hampshire Office of State Planning, New Hampshire State Comprehensive Outdoor Recreation Plan (SCORP)1994-1999, July 1994.

II. DESCRIPTION OF AUTHORIZED PROJECT

2.1 Location

The Franklin Falls Dam is located on the Pemigewasset River, a main tributary of the Merrimack River, about 2.5 miles upstream of Franklin, New Hampshire. The reservoir lies within the towns of Franklin and Hill in Merrimack County, Bristol in Grafton County, and Sanbornton and New Hampton in Belknap County, New Hampshire. See Figure 1.

2.2 Project Description

2.2.1 Facilities

The main flood control project structure, located in Compartment 1, is a 1,740-foot long rolled-earth dam with a protective rock shell rising about 140 feet above the stream bed to a top elevation of 416 feet above Mean Sea Level (MSL). A reinforced concrete spillway and appurtenant structures and project office, garage and other facilities are managed and operated in accordance with the authorized flood control purpose of the project. The project was completed at a cost of approximately \$8 million in 1943. The permanent pool is approximately 307 feet (MSL). At a spillway crest of 389.0 feet (MSL), the dam can impound a 2,800-acre reservoir capable of storing approximately 50 billion gallons of water, which is equivalent to 2.9 inches of runoff from its 1,000 square mile drainage area. An operations center, office, and maintenance facilities complete the infrastructure for administering the project and managing the flood control purpose and recreational functions of the project. The facility has prevented damages of approximately \$59.1 million through 1996. The reservoir and the adjacent relatively undisturbed environment provides excellent opportunities for outdoor recreational opportunities for land and water based activities in addition to timber and wildlife management.

2.2.2 Project Operations

The permanent pool level at the Franklin Falls reservoir of 307 feet (MSL) covers 440 acres with a maximum depth of seven feet. The flood storage area of the project, which extends 12.5 miles upstream from the dam, is 2,800 acres. During high precipitation, the eight conduit gates remain open until the outflow rises to a predetermined discharge rate (up to 18,000 cfs). That outflow is normally maintained throughout the flood event. The nature of the Pemigewasset watershed leads to rapid

fluctuation in water levels during flood events. Rainfall runoff within a 24 hour period in the watershed could fill the reservoir to capacity.

2.2.3 Land Acquisition and Outgrants

The project consists of approximately 3,669 acres. An additional 15.6 acres, located approximately one mile downstream from the dam is held by the U. S. Government in flowage easement. An estimated 81.0 percent is forest and brush, 16.8 percent is grass and old fields and 2.2 percent developed areas.

There are a number of outgrants in the forms of easements, leases and licenses at the Franklin Falls Project. The Public Service Company of New Hampshire holds two easements for a transmission line (expires 22 April 2003). The town of North Hampton holds an easement for Blake Brook Road (indefinite) and the State of New Hampshire has an easement for the relocation of Route 3A (indefinite). An easement is held by the city of Franklin for a well site (expires 2 October 2036). Leases are held by John R. Dow and Charles Moore for artesian wells, which expire respectively on 25 January 1999 and 4 September 2000 and Franklin Falls Hydro for an hydroelectric station (expires 31 December 1998). Acme Staple holds a license for a 6 inch PVC drain (expires 21 March 2001).

DRED holds a 25-year license (1 July 1989-30 June 2014) for approximately 2,763.4 acres of land and water resources at the Franklin Falls Project. See below for additional information.

2.2.4 Reservoir Management

Under the authority of Section 4 of the Acts of Congress approved 22 December 1944, as amended (76 Stat. 1195, 16 U.S.C. 460d), the Corps granted DRED a license (DACW33-3-89-63) for a period of twenty-five (25) years, beginning 1 July 1989 and ending on 30 June 2014, to use and occupy approximately 13,034 + acres of land and water areas under the primary jurisdiction of the Department of the Army in the Management Unit. The DRED license is for fish and wildlife, forest management and other natural resource purposes for the Franklin Falls, Blackwater, and Hopkinton Everett Projects. With respect to Franklin Falls, the Management Unit consists of all project lands except Compartment 1, which is reserved for the operation of the flood control project, and those lands in Compartments 11 and 12 set aside for intensive recreational use at the Profile Falls Recreation Area. DRED's management responsibilities cover approximately 2,763.4 of land and contiguous water resources of the project's 3669 acres. The ultimate responsibility for the project's natural resources rests with the Corps of Engineers. See Figure 1 and Table 1.

Table 1
Franklin Falls Project Master Plan
MANAGEMENT RESPONSIBILITIES FOR PROJECT LANDS
(Acres)

Compartments	Corps of Engineers	NH Department of Resources and Economic Development (Leased Area)	Totals
1	328.6		328.6
2		182.7	182.7
3		103.0	103.0
4		392.8	392.8
5		227.5	227.5
6		259.5	259.5
7		201.5	201.5
8		221.0	221.0
9		409.5	409.5
10		345.0	345.0
11	6.0	218.2	224.2
12	<u>9.4</u>	<u>202.7</u>	<u>212.1</u>
Subtotals	344.0	2,763.4	3,107.4
Water			548.0
Adjustment			<u>+13.6</u>
TOTAL			3,669.0

DRED administers the license under the principles of forest sustainability as recommended by the Recommended Voluntary Forest Management Practices (RVFMP) manual giving consideration to all resources and amenities provided by the forest: timber, water and scenery; trees, shrubs and herbaceous plants, soil bacteria, fungi, and nutrients; wildlife and insects. It requires compromise and tradeoffs among competing uses and the balancing of individual and societal needs, rights and responsibilities. This is accomplished with the assistance of the State Lands Management Team consisting of the Division of Parks and Recreation and Bureau of Trails, Division of Forests and Lands (Forest Management Bureau and Natural Heritage Inventory, Forest Protection Bureau, State Forest Nursery), and the Division of Historical Resources. This Team is a multi-agency organization that provides coordinated and inter-disciplinary resource management assistance on all state-owned lands under DRED's jurisdiction and Franklin Falls, Hopkinton-Everett and Blackwater Projects. Responsibilities include the identification and protection of threatened and endangered species, wetlands, exemplary natural communities, and cultural resources. In addition, all project lands must be monitored for any addition or reduction of threatened and endangered species.

DRED manages all lands under its jurisdiction guided by the principles of forest sustainability in the RVFMP manual. The manual provides practical guidelines for sustainable forest management practices to maintain the structure, function and composition of forest ecosystems; and meet the diverse needs of the human community.

Timber production on project lands is managed under DRED's license as part of a multiple-use management program guided by the principles of sustained yield in compliance with New Hampshire state law. The Society of American Foresters defines sustained yield as the yield that a forest can produce continuously at a given intensity of management. Sustained yield management therefore implies continuous production so planned as to achieve, at the earliest time, a balance between incremental growth and cutting.

For all compartments, a boundary marking and maintenance program is a requirement as part of overall resource management and protection. This will limit opportunities for unauthorized use and identify the government boundary for management practices and public use. To improve wildlife and forest habitat, prescribed burns can be carried out to stimulate vegetative growth and remove underbrush. Erosion and runoff preventive measures are to be carried out as an important part of the resource management activities, such as harvesting operations, road maintenance and trail work. Illegal dumping and cutting activities are to be controlled through established

enforcement and surveillance programs to maintain the aesthetic quality of the project, and the overall health of the forest lands.

Reservoir management has proceeded according to Franklin Falls Reservoir, Master Plan for Development dated July 1966. The project is staffed by a project manager, and three park rangers who also perform operation, maintenance, license and lease administration for both the Franklin Falls and Blackwater Projects. Other duties include flood control, the implementation of the Master Plan, interpretative services, visitor assistance, recreation, and natural resource management.

2.2.5 Relationship to Other Projects

Franklin Falls Dam is a key unit of a coordinated system of reservoirs including Blackwater, Hopkinton-Everett and Edward Mac Dowell Lakes in a comprehensive plan of flood damage reduction for the Merrimack River Basin. Staff at the Reservoir Control Center (RCC), located at Corps headquarters, manage the dams and reservoirs. They closely monitor precipitation, river levels and tidal levels in New England. State-of-the-art communications equipment, complemented by the Geostationary Operational Environment Satellite (GOES) System, serves as a communications link for the relay of hydrologic and meteorological data to the RCC where it is examined and analyzed for potential flood conditions. During flood conditions, the information is used to determine when to operate flood control gates and when to release stored water. The flood control system provides protection to communities including Franklin, Northfield, Boscawen, Canterbury, Concord and Bow, New Hampshire and major industrial centers including Manchester and Nashua, New Hampshire and Lowell, Lawrence and Haverhill, Massachusetts.

The system is administered from the Merrimack River Basin Office at Hopkinton Lake, Contoocook, New Hampshire. The Franklin Falls and Blackwater Projects are managed from the Franklin Falls Project Office, Franklin, New Hampshire.

There are two hydroelectric power dams upstream from Franklin Falls Dam that are within or discharge into the project area that are owned by private interests. Giles Pond Dam on Salmon Brook in Franklin is located in the project area. The Newfound Hydroelectric Dam on the Newfound River in Bristol is located outside of the project area but discharges into it. Ayers Island Dam in Bristol and Eastman Falls Dam in Franklin, located upstream and downstream respectively of the dam, also provide hydroelectric power.

During times of flood emergencies the Flood Emergency Plan for Franklin Falls Dam, in accordance with ER 1130-2-419, becomes operational and includes provision for the evacuation of downstream populations, should it become necessary. In order to provide adequate protection for the health and safety of the public, the dam and appurtenant structures undergo periodic inspections in accordance with the Corps Periodic Inspection Program required in ER-1110-2-100 for all completed civil works projects.

2.2.6 Water Storage

Since the Franklin Falls Project was completed in 1943, significant storage of water has occurred on average once per year. This is usually about 14 percent of reservoir capacity or about 22,000 acre-feet of water. Water storage exceeding 22 percent of reservoir capacity has occurred about 3.5 times every ten years. Large storage events occurred in 1953, 1973, 1984, and 1987. The 1953 and 1987 floods brought the reservoir to 76 percent capacity.

Normal water storage events are generally of short duration. Drawdown occurs once the river channel can accommodate additional water. This is in anticipation of the next high water period.

2.2.7 History

The Merrimack River Valley region of New Hampshire is probably the best documented area for prehistory in all of New Hampshire (Bolian and Gengras 1991:6). The Franklin Falls Project area is located along the Pemigewasset River, a northern tributary of the Merrimack River. The high frequency of archaeological sites along the Merrimack River are located along the terraces and alluvial surfaces bordering the river. The Pemigewasset is a less known drainage which is expected to contain the same basic variables of archaeological sensitivity.

2.2.7.1 Prehistoric Era

The earliest period of human occupation in New Hampshire is known as the Paleo Indian of approximately 14,000 to 10,000 years ago characterized by hunter gatherer populations. This period is poorly represented in the archaeological record, limited to finds from the Neville and Symth sites in Manchester. During the Early Archaic Period (10,000 to 8,000 years ago), sites were found in riverine and lacustrine settings in New England with the closest such site to the project area being the Weirs Beach site on Lake Winnepesaukee. The Middle Archaic (8,000 to 6,000 years ago) is well represented throughout the Merrimack drainage with most of these sites located at

falls or rapids where anadromous fish could be exploited. The Neville site at Amoskeag Falls is a famous site of this period. During the Archaic, native groups have become permanent year-round residents, unlike the earlier resources gathering and procuring groups. By the Late Archaic (6,000 to 4,000 years ago) and the Terminal Archaic (4,000 to 3,000 years ago), population increase is prominent together with the rise of sedentism and trade patterns. The Woodland Period (3,000 to European Contact) comprises early, middle and late epochs and is marked by the use of pottery and distinctive material culture such as projectile points indicating changing settlement, subsistence, and social behaviors.

The Pennacook Tribe occupied the Merrimack River Valley of southern and central New Hampshire including parts of northeastern Massachusetts and southern Maine, until after 1676 when they were forced to abandon the lower Merrimack. While some villages continued along the upper Merrimack until 1730, most of the Pennacook had moved north to Abenaki County in Maine or went to the Sokoki (Western Abenaki) at St. Francois du Lac in Quebec.

2.2.7.2 Historic Era

The Franklin Falls Project area is composed of portions of the communities of Bristol (Grafton County), Franklin and Hill (Merrimack County), and New Hampton and Sanbornton (Belknap County). The first permanent settler of Bristol (originally called New Chester) was Cutting Favor who settled in 1766 near the Pemigewasset River. Two settlements were established: Profile Falls at the confluence of the Smith and Pemigewasset Rivers and the village of Hill on the Pemigewasset near Franklin. Hill was separated from New Chester in 1819. The town of Franklin was created in 1828 from portions of Andover, Salisbury, Northfield, and Sanbornton. This area was originally settled in 1748. New Hampton was originally settled in 1775 and is bounded on the west by the Pemigewasset River. The initial settlement of Sanbornton occurred in 1764.

Settlement in these communities developed along similar paths. Farming was the chief industry during the 18th Century until its decline during the mid-19th Century. Manufacturing and trade in the various towns were later to become important early industries. The Pemigewasset was also developed for waterpower by the mid 19th Century and a proliferation of saw and grist mills appeared. The late 19th and early 20th Centuries saw the development of summer homes and cabins on Newfound Lake. These resort areas remained popular until after World War II when cabins were sold and lots subdivided for private use. Farming was also the chief industry in Hill, although the manufacture of glass cutters and fine-latch needles was significant. The construction of the Franklin Falls Project from 1939 through 1943 and the subsequent

flooding of the reservoir caused the displacement of residents in the towns of Bristol, Franklin, Hill, New Hampton and Sanbornton and the destruction of residential, commercial and public properties.

2.3 Topography

The Franklin Falls Reservoir lies within a narrow section of the Pemigewasset River Valley characterized by steep hills and gently sloping bottom lands. During periods of normal flow, the river meanders along the valley floor with a slope of about six feet per mile. The approximately 1,000 square mile watershed above the dam extends about 55 miles to the north with a maximum width of 28 miles. The elevations of the watershed divide average about 1,700 feet MSL on the west and nearly 3,000 feet MSL on the east, while peaks up to 5,000 feet MSL are common in the north. At the head of the Pemigewasset River, Mount Lafayette rises to an elevation of 5,249 feet, the highest point in the watershed.

2.4 Climate and Hydrology

Weather is influenced by continental air rather than air from the Atlantic Ocean. The prevailing wind is from the northwest. The average length of frost-free season is 130-140 days. The summer temperature is moderate with the mean for July, the warmest month, being 70 degrees Fahrenheit (F). Winter temperatures are reasonably cold with the average temperature during January and February averaging about 21 degrees F. Recorded extreme temperatures have varied between 99 and -29 degrees F.

The mean annual precipitation over the watershed is about 43 inches and is distributed uniformly throughout the year. Average monthly precipitation varies from a minimum of 3.3 inches in February to a maximum of 3.9 inches in November. Normal annual snowfall is about 83 inches. Intermittent tropical storms and /or northeasters serve as the only violent source of damage to the project forest.

The Pemigewasset River is a continuation of the main Merrimack River above Franklin, New Hampshire. It originates at Profile Lake, Franconia, New Hampshire, and flows in a southerly direction to its confluence with the Winnepesaukee River, located 2.5 miles downstream from the Franklin Falls Dam in Franklin New Hampshire. The Pemigewasset has a drainage area of 1,021 square miles, of which 1,000 square miles are controlled by the Franklin Falls Dam. The major portion of the water environment of the project consists of an 11.3 mile portion of the Pemigewasset River. Tributaries of the river are Smith River, Newfound River, Dyer Brook, Needle Shop Brook, Bennett Brook, Salmon Brook, Knox Brook, Prescott Brook, Wallace Brook, Weeks Brook and Blake Brook.

2.5 Transportation

The dam and administrative area can be entered from Route 127 in Franklin. Other access roads on the east side of the project are Shaw Cove Road off Highway 127 in Sanbornton, and Coolidge Woods Road off Old Bristol Road in New Hampton. Access to the west side can be gained by numerous roads off Route 3A between Franklin and Bristol. Part of the Heritage Trail, on the east side of the river, designated snowmobile trails, and old roads within the project are used for hiking. The old roads are also used for cross-country skiing, dog sledding, and bicycling. All terrain vehicles (ATV's) and trailbikes are not allowed on project lands except by officials in the performance of their duties.

III. RESOURCE INVENTORIES AND ANALYSIS

3.1 Introduction

The Franklin Falls Project area provides important and valuable natural resource and recreational opportunities for the surrounding area. Fish and wildlife management and forestry management programs are carried out on project lands. Recreational activities include hiking, fishing, hunting, sightseeing, cross-country skiing and snowmobiling.

3.2 Natural Resources

The land area is occupied by 81 percent forest and brush, 16.8 percent in open land (grass/old fields) and 2.2 percent by the infrastructure for fulfilling the flood control purpose of the project in Compartment 1. Approximately three-quarters of the open land occurs on the west side of the Pemigewasset River in Compartments 8 through 12. See Table 2.

3.2.1 Geological Resources

Man-made soil is approximately 250 acres. Natural regeneration of white pine and northern hardwood is favorable on all natural soils at Franklin Falls. The water table is 0-5 feet and there is a thin B horizon due to plowing in the past. Most of the soils are considered immature, having little horizon development.

There are several acres of erosion along the river associated with the steep terraces that are prone to slumping. These areas, one to five acres in size, are in need of monitoring. Many of the small or potential slump areas can be cleared of timber and seeded by project personnel and temporary helpers. Methods of slope stabilization will be determined according to data gathered for each area, considering soil types, topography, periodic flooding, impacts on aesthetics and wildlife, and proximity to project operational areas.

The primary soil series within the Franklin Falls Project are Adams, Podunk, and Rumney. Other series, including Becket, Croghan, Lyman, and Ondawa, are also present. Adams soils are deep, sandy, excessively drained soils formed in glacial outwash on terraces. Podunk soils are deep, moderately well drained soils, formed in alluvium on floodplains. Rumney soils are deep, poorly drained soils formed in alluvium on floodplains.

Table 2
Franklin Falls Project Master Plan
LAND COVER
(Acres)

Compartments	Developed Areas	Grass/ Old Fields	Forest/ Brush	Totals
1	67.2		261.4	328.6
2			182.7	182.7
3			103.0	103.0
4		63.1	329.7	392.8
5			227.5	227.5
6		6.5	253.0	259.5
7		53.0	148.5	201.5
8		19.9	201.1	221.0
9		92.0	317.5	409.5
10		215.5	129.5	345.0
11		61.6	162.6	224.2
12		<u>12.2</u>	<u>199.9</u>	<u>212.1</u>
TOTALS	67.2	523.8	2,516.4	3,107.4
PERCENT	2.2	16.8	81.0	100.0

NOTE: Acreage includes wetlands, as well as, uplands.

Overall, the soils at the Franklin Falls project can be characterized as moderately to highly acidic, and primarily sandy, with rapid water permeability. A portion of the project is classified as Manmade soil due to construction activities in the administration area. These soils are mainly mixed gravel and sand.

3.2.2 Surface Waters and Wetlands

Water resources in the project area include three rivers and several brooks and tributaries. The project consists of an 11.3 mile portion of the Pemigewasset River. Other rivers and brooks within the project area include: Smith River, Newfound River, Dyer Brook, Knox Brook, Needle Shop Brook, Bennet Brook, Salmon Brook, Prescott Brook, Wallace Brook and Blake Brook. See Figure 1. The Smith River has a drainage area of 87 square miles, the Newfound River drainage is 98 square miles, and the remaining 815 square miles is the Pemigewasset and local drainage.

The Pemigewasset River, Smith River and Newfound River are classified as "Class B" waters by the New Hampshire Water Supply and Pollution Control Commission. Class B waters have high aesthetic value and are acceptable for swimming and other recreation activities, fish habitat, and for use as a water supply after treatment.

A water quality monitoring study performed by the Corps of Engineers in 1983 found that the Pemigewasset River in the vicinity of Franklin Falls met the state's Class B requirements, with a few exceptions. The study showed violations of the minimum pH criteria, as well as moderate levels of iron and manganese.

Water quality is adversely affected by siltation resulting from flood events. Water fluctuation along the river banks causes scouring of the banks, resulting in slumping and siltation.

The wetlands in the Franklin Falls Project provide important functions and values. The wetlands provide flood storage capabilities, as well as filtering of any pollutants with subsequent improvement of water quality conditions. The wetlands provide recharge areas for any groundwater supplies. Wetland areas directly associated with the river can provide important nursery areas for fish. The wetlands are also important habitat areas for birds, reptiles, amphibians, and many species of mammals.

Wetlands were classified using the Cowardin et.al. classification system (1) as shown in Table C-1 in Appendix C. The project area contains 702.8 acres of wetlands, consisting of two overall wetland systems:

Palustrine: all freshwater wetlands dominated by trees, shrubs and persistent emergent herbaceous vegetation

Riverine: generally all wetlands and deepwater habitats contained within a channel

The wetland areas at Franklin Falls are primarily associated with and directly connected with the Pemigewasset River. The majority of the wetlands are found in oxbow areas within the river corridor, and do not extend far from the river because of the topography and soils of the area. No isolated wetlands were noted. The acreage of each wetland category is shown in Table 3. A detailed description of the wetland areas is provided in Appendix C, Final Wetland Survey for the Franklin Falls Dam Flood Control Facilities, 1997. Figures C-1 to C-4 in Appendix C illustrate the various wetland categories delineated in the project compartments.

In addition to the riverine type (391.2 acres), the dominant wetland types found in the Franklin Falls project area are Palustrine Broad Leaved Deciduous Shrub Swamp (PSSI) (131.0 acres) and Palustrine Broad Leaved Deciduous Forested Swamp (PF01)(128.0 acres). The wetland sites are primarily located in oxbow areas within the river corridor, and are subject to periodic or seasonal flooding. The wetlands vary from white pine swamps to aquatic bed vegetation, and are tolerant of the flooding with regular nutrient flushing.

The various wetland types are scattered throughout the compartments, with several types more dominant than others in some compartments. Large shrub swamp areas (PSSI) were found in Compartments 6 (on Sumner Island), 8, 9, and 10. Several large forested swamps (PF01) were located in Compartments 2, 4, 7, and 12. Aquatic beds

(1) Cowardin, L., Carter, V., Golet, and E. LaRoe, "Classification of the Wetlands and Deepwater Habitats of the United States", Fish and Wildlife Service, U.S. Dept. of the Interior, FWS/OBS 79/31, Dec. 1979

Table 3
Franklin Falls Project
Wetland Acreages by Type

<u>Wetland Type</u>	<u>Acreage</u>
Riverine Area (R)	391.2
Palustrine Broad Leaved Deciduous Shrub Swamp (PSS1)	131.1
Palustrine Broad Leaved Deciduous Forested Swamp (PF01)	128.0
Palustrine Emergent (PEM1)	28.9
Palustrine Needle Leaved Evergreen Forested Swamp (PF04)	11.0
Palustrine Aquatic Bed (PAB1)	7.3
Palustrine Open Water (POW)	<u>5.3</u>
Total Acreage	702.8
Number of Potential Vernal Pools (VP?)	13
Intermittent Stream Length (miles)	8.5

(PAB1) were found in Compartments 3, 4, 9 and 10. Potential vernal pools were noted in Compartments 2, 4, 6, 7, 8, 9, 10, 11, and 12. Vernal pools are generally low areas that contain water for only part of or throughout the year, but do not support a fish population. Vernal pools are important resources as they serve as safe breeding habitat for a number of amphibian species, including the spotted salamander, red-spotted newt, wood frog, and fairy shrimp. Management objectives throughout the compartments would include protection of wetland areas from road or trail construction, in particular, the potential vernal pools located in Compartments 2, 4, 6, 7, 8, 9, 10, 11 and 12. Specific spring surveys of the potential vernal pools should be carried out to determine if they are functioning as true vernal pools and used as

breeding habitat. Any timber harvesting practices in the vicinity of the wetland areas should include protective buffers to prevent any erosion into the wetland areas.

3.2.3 Vegetative Cover

3.2.3.1 Forest Lands

The forest cover is predominantly coniferous consisting of white and red pine, hemlock and scattered red spruces. Mixed hardwoods consisting of maples, birches and oaks are also scattered throughout the area. The project area has been altered in the past, although a 25-acre piece of stand 8 in Compartment 2 has been reserved by DRED for its large white pine and its capabilities to grow this species. There are several islands within the reservoir. The largest is Sumner Island (36.5 acres). All are subject to inundation.

DRED leases the majority of project lands for forest and wildlife management. A forest inventory was completed by DRED in 1988. The results of this inventory are shown, by compartment, in Appendix A. The area licensed by DRED consists of 1,950.4 acres of forest and 813 acres of old field/early successional cover. The most abundant cover type is white pine and white pine/hemlock mix. Other types include red pine, northern hardwoods, and white pine/red oak/red maple mix. A Norway spruce stand was noted in Compartment 4. Compartments 4, 7, 8, 9, 10 and 11 have a number of grass/old field cover types. Old field/early successional types are managed for wildlife habitat. A discussion of forest species associated with wetland habitats is included in the Surface Waters and Wetlands section.

DRED's forest management program is based on consideration of all resources and benefits and guided by the principles of sustained yield. Softwood timber types are managed on a 90-year rotation (rotation is the time from seedling to final harvest) as a whole, while hardwood timber types are managed on a 100 to 120 year rotation. This approach provides for net growth in the forest system. Diversity of age classes and species is also important and is strived for in the management of the timber resources. Diversity of species is dictated by the soil/site capabilities of the property. These capabilities cannot be changed, but can be used to determine how much diversity is possible on this property. Maintaining the health and maximize the vigor of the timber resources is also achieved through this management.

The objectives of the forest management activities are to increase the health and value of lands for recreation, forestry, wildlife habitat, aesthetics and watershed management through application of sound management practices. The forest resources also require protection from insects, diseases, fire and overuse.

Management activities include periodic inventories, harvesting timber with accepted silvicultural practices, and monitoring for insect and disease problems. Commercial timber harvesting will be conducted according to sustainable forestry practices recommended in the RVFMP manual.

The project operations compartment (Compartment 1) contains stands of red pine that are in need of thinning and pruning to maintain a healthy forest, as well as to improve the stand's appearance. This stand has been affected by insects. Overall tree maintenance is required for this compartment. Practices that can be implemented to control insect infestation and disease outbreaks include thinning to increase sunlight, use of fertilizer, soil aeration, and mulching.

The Profile Falls Recreation Area (Compartment 12) contains stands of white pine, red oak and red maple. Several stands in this compartment are in need of selective harvesting, thinning to increase sunlight, and regeneration based on the 1988 forest inventory performed by DRED. The objectives for forest management in the area are to improve the health of the forest, improve wildlife habitat and species diversity, and to control insects, disease and undesirable vegetation. Other management measures that can be implemented include fertilization, soil aeration, and mulching.

3.2.3.2 Open Land (Grass and old fields)

There are no agricultural leases at the Franklin Falls Project. DRED maintains 813 acres in early successional growth. The goal is to maintain 3 to 5 percent of the land in early successional growth. This open space provides a much needed diversity of habitat for wildlife on both project lands and for the region. There is a regional scarcity of open grass land for wildlife needs as many potential open space zones are being lost to woody growth. Also the condition of the majority of apple trees on the project is the result of the abandonment of farms at the time the project was constructed.

Agricultural areas are important for setting back plant succession and maintaining a variety of interspersed habitats for wildlife. However, it is highly unlikely that the abandoned agricultural leases at the Franklin Falls Project will ever be reinstated. There is a lack of interest in leasing land for agriculture. Farming is on the decline. Accessibility is a problem associated with much of the agricultural land at Franklin Falls. In addition, the cost of bringing land back to agricultural production is costly. Also the uncertainty of damage to crops and livestock due to water level fluctuations and vandalism discourages agricultural use.

Furthermore, the abandoned agricultural leases have been integrated into the DRED license. Under its license, DRED is not allowed to sub-lease. For the Corps to reinstate an agricultural lease program would first require a real estate action for the Corps to regain control of the land in question. Such an action would be disruptive and incur administrative costs for both agencies. It is not likely that a reinstated agricultural lease program could be successful.

Open areas contribute to the project's aesthetic, wildlife habitat, and overall environmental quality. The open areas are presently being kept open through mechanical means and controlled burning. These practices should continue as a means of keeping the land open.

For the most part, the open orchard land has converted to forest. The remaining apple trees are extremely valuable to wildlife. There is an ongoing apple tree release and fertilization program to enhance the productivity of the remaining apple trees. This important wildlife program should continue.

3.2.3.3 Developed Areas

Developed areas occur in Compartments 1, 11 and 12 at the Franklin Falls Project. Compartment 1 includes the structural components of the dam and dike and a viewing area with parking and picnic tables that overlook the dam and gatehouse. A 15.4-acre recreation area managed by the Corps of Engineers, known as Profile Falls, is located off Highway 3A, ten miles north of the town of Franklin in Compartments 11 and 12. Developed facilities include a parking lot, a small picnic area, portable toilets, and a hiking trail to Profile Falls.

3.2.3.4 Exemplary Natural Communities

The 1996 survey recorded several exemplary natural communities as well as natural communities of local significance within the project area. These communities are listed in Table B-1 in Appendix B. Figures B-1a through d and B-2a through d show the significant natural community observation points (NH NHIP, 1996). Natural communities are natural assemblages of plants and animals that recur in the landscape in similar physical habitats. They are defined by a characteristic vegetation structure and species composition. Communities are considered exemplary because of their largely intact condition and relative rarity or uncommonness within the state and region. A brief description of the various communities is provided below.

(a) The **floodplain** communities were found at the mouths of tributary brooks, on islands, point bars, stabilized alluvial terraces, and sand and gravel bar systems. The

floodplain areas consist mainly of mineral-soil terraces of the river channel that are flooded regularly by over-bank flow of the Pemigewasset River and support vegetation characteristic of naturally flooded habitats. Among the most notable floodplain areas were those found on the point bar on the west side of the river west of Giles Pond (just south of Shaws Cove), the mouth of the unnamed drainage between Knox and Prescott Brooks, Sumner Island and the unnamed companion islands to the north, the mouths of Smith River, Prescott Brook, Wallace Brook, and Needle Shop Brook. Knox Brook and confined lower portions of Needle Shop Brook contain high energy streambank communities similar to floodplain thickets along the main stem of the Pemigewasset.

(b) The **dry sandy river bluff opening/woodland community** is comprised of open conditions and early-successional areas produced by natural destabilization of the coarse-soil terrace slopes. This community is significant because of the native assemblage of sandplain vegetation in a naturally maintained environment. The river bluff section on the meander west of Giles Pond is characterized by extensive sand and gravel deposits. The terraced slopes are generally forested, with destabilized openings resulting from the undercutting of the terrace slope by the river. Areas which are more stable have an open woodland character with low shrubs and saplings, and native sedge and grass species. There is a natural riverside grassland system which is at the toe-slope of the river bluff opening. The dominant grass is little bluestem with other native sandplain plants occurring as well.

(c) The **rich mesic forest community** is found within ravines along unnamed drainages north of Knox Brook. These ravines have steep mixed hardwood and softwood forested slopes with narrow bottoms. Sections of the ravine bottoms have a forest under story characteristic of enriched, mesic conditions with such species as maidenhair, various ferns, and trillium. The canopy in the ravine bottom is predominately sugar maple, white ash and hemlock.

3.2.3.5 Natural Communities of Local Significance

(a) A **dry Appalachian oak-hickory forest** is located on the south facing slope of the cove just north of the Franklin Falls dam on the east side of the river. This community is approximately 2 acres in size, and is dominated with white oak, red oak and beech. Another oak stand is located on the west side of the river approximately 1 mile north of the dam, immediately east of the east end of Lake View Drive. This community is approximately 15 acres in size, and is dominated with red oak, mixed with white oak and other hardwoods.

(b) A **dry, pitch pine-Appalachian oak forest** occurs on the top of the terrace flat at the north end of the second dry Appalachian oak-hickory forest community, on the northeast side of the sandpit. It is approximately 1-2 acres in size, and is distinguished with the presence of scrub oak, black oak, and pitch pine.

(c) **Forest seeps** are present at many locations in the project area. They are typically small wetland areas located within upland forests where groundwater discharges to the surface at headwater positions, or where a layer of impervious soil forces water to the surface along a slope. Along the north side of Weeks Brook, a headwater seep is located which lays in an upland bowl, and contains a well established herbaceous community. Other seeps occur elsewhere in the same drainage, and along the terrace slope on the opposite side of the river from Giles Pond.

(d) **Hemlock-beech oak-pine forest communities** can be found in the areas of Prescott Brook, Wallace Brook, an area west of Giles Pond, along an unnamed drainage south of Prescott Brook, an area north of Prescott Brook, and along the Smith River, south of Profile Falls. These communities are characterized by forest terraces with various species composition depending on the disturbances from flood waters. The typical species that can be found in these communities include white and red pine, hemlock, beech and red oak.

(e) The **high energy riverbank community** is designated as those communities in the immediate river channel which are influenced by high-energy flood waters on a regular basis. They are found along the riverbank or islands and point bars throughout the length of the project area, and are characterized by variable species composition. They are associated with the other floodplain communities, and also include sand and gravel bars. Two gravel bar systems are located along Needle Shop and Knox Brook drainages. Examples of species found in these areas include silver maple, American elm, butternut, and willows.

(f) A **mesic Appalachian oak-sugar maple-beech hemlock forest** is located to the north of Smith River. This community is dominated by red and white oak, sugar maple and hemlock. Further along the terrace the community changes to a mature big-toothed aspen and beech forest.

Management objectives for these areas would include ensuring that recreational activities do not degrade the integrity of these areas, they remain intact and are protected. The placement of the Heritage Trail should take into consideration the presence of these areas. Interpretative signs explaining the make-up of these habitats could be placed along hiking trails to educate the public about these unique areas.

Visual access could be provided for recreational users, such as providing openings at various points along the Heritage Trail for viewing of the unique natural communities. It should be noted that these natural communities were noted by the particular researchers carrying out the survey for exemplary natural communities. Franklin Falls Project personnel upon consultation with NH NHIP staff would decide on those, if any, communities for particular visual access and protection.

3.2.4 Wildlife

DRED is licensed to manage approximately 2,763.4 acres of land for wildlife management under the multiple use concept. The project area supports a wide range of wildlife species as can be seen in Table A-2 in Appendix A. This table shows a portion of the wildlife species known or assumed to exist within or adjacent to the project area. The species list represents game animals, animals of special concern, and those non-game species which are readily observed and enjoyed by the general public. The project offers a diversity of habitats for the many species of wildlife that inhabit the project lands. The forest areas, wetlands, open areas and river provide important habitat requirements. The project also offers wildlife observation opportunities to canoeists and hikers, as well as important aesthetic values with the meandering river passing through forests with views of rolling terrain. Vegetation types are suitable for wildlife food and cover, including dense white pine stands. There is favorable habitat for furbearers, with beaver, muskrat, mink and otter living along the riverbanks.

Early successional habitat is an important and declining wildlife habitat type in New Hampshire. There are approximately 813 acres of this habitat within the project. Many wildlife species found in and around the project use this habitat to meet some or all of their habitat requirements. The dense conifer cover next to these open areas provides added opportunities for cover. The project area also has habitat important to raptors for hunting and nesting. Although waterfowl nesting habitat is sparse, migrating flocks do utilize wet and flooded fields during the spring migration.

Except for the administration and operational area, the project is available for hunting and fishing. The local residents, as well as hunters from around the state, heavily use the project lands for hunting. The New Hampshire Fish and Game Department releases pheasants four times during the hunting season as part of a put and take program. In 1996, 1,061 pheasants were released. This release program is the largest in New Hampshire due to a statewide shortage of open space. The Franklin Falls Project is one of the areas containing great amounts of open space in the region.

Wildlife management practices are implemented through the DRED license. These practices include upland wildlife habitat improvement projects completed through commercial contracts, state resource management personnel and timber harvesting. Activities include mowing fields, planting food plots, and apple tree release work.

The wildlife management program objectives are to provide for the greatest diversity of natural habitat to support species indigenous to the area compatible with the operation of the facility. Some of the wildlife management practices carried out at the project include artificial nest structures, maintaining open areas through periodic mowing, and habitat improvement for deer and woodcock (planting of particular vegetative species for food plots). Census counts should be taken to obtain knowledge of the extent of wildlife populations the project lands support. Also, permanent monitoring plots for bird species should be set up to determine the overall habitat suitability for birds.

3.2.5 Fish

The Pemigewasset River meanders 11.3 miles through the project. Low areas are subject to periodic inundation with little or no vegetative growth. Sunken brush and logs are advantageous to fish for cover and shade but detrimental to flood control operations and boating. Water quality is suitable for maintenance of fish life. Periods of high water in 1953 and 1973 caused considerable disruption to fish populations by stranding fish and from siltation. Warm water fish appeared to recover quickly. Banks were stabilized by the removal of large trees in slump areas.

The New Hampshire Fish and Game Department annually stocks several of the rivers and brooks in the project area with brook and rainbow trout. (NHFG, 1996). This stocking program, which the state will continue, includes the following:

Pemigewasset River, Franklin/Hill

1700 brook trout yearlings, 2000 brown trout yearlings, and 200 rainbow trout yearlings

Smith River, Danbury/Hill

1700 brook trout yearlings, 1500 rainbow trout yearlings, 200 rainbow trout yearlings

Needle Shop Brook, Hill

210 brook trout yearlings in addition to Atlantic salmon fry at a rate of 25 feeding fry per 100 m² section of brook

Knox Mountain Brook, Sanbornton

340 brook trout yearlings

No warmwater fish survey information is available for the project area. However, warmwater fish species known to inhabit the Pemigewasset River include perch, pickerel, small-mouth bass and horned pout. The goal of the Merrimack River Atlantic Salmon Restoration Program is to restore the adult salmon spawning population in the Merrimack River to a population density which utilizes all of the existing spawning habitat, becomes a self-sustaining population and is able to support sport fisherman through surplus stock. In support of this program, the NHFG annually releases 800 Atlantic salmon brood stock (6 to 12 pound average) north of Ayer's Island Dam in Bristol. These fish at times will "drop down" into the Franklin Falls Project area. An annual release of 800 Atlantic salmon brood stock also occurs below the Eastman Falls Dam to the confluence of the Winnepesaukee and Pemigewasset Rivers (NHFG, 1996). A buffer strip is required at least 300 feet wide on both sides of all permanent project water courses. Special management practices should be developed to selectively cut timber on slump-prone areas, encourage growth of alders and aspen along the banks, protect and preserve large, overhanging trees which shade the water, and seed the flood prone low areas with grasses to hold the soil. Considerations for aesthetics, wildlife, recreation access areas, and rest areas for migrating birds are desired.

There are ongoing programs to limit pesticide usage adjacent to the river to protect water quality conditions and fisheries. Use of chemical pesticides is limited to herbicides to prohibit the growth of vegetation on the rock-faced portions of the dam and poison ivy control at intensive use areas. Chemical pesticides are used only as a supplement to mechanical controls in structural areas and all usage is in compliance with New Hampshire regulations.

3.2.6 Rare or Protected Species

No federally listed or proposed threatened and endangered species are known to occur in the project area, with the exception of occasional, transient bald eagles (*Haliaeetus leucocephalus*) or peregrine falcons (*Falco peregrinus*) (USFWS, 1996).

A rare and endangered species survey was conducted by the Corps of Engineers in 1996 to determine the status of rare or protected species in the Franklin Falls project area. The survey was completed by the New Hampshire Natural Heritage Program and the Nature Conservancy in collaboration with the NH Fish and Game Department, Nongame and Endangered Wildlife Division. The primary objective of the survey was to characterize the flora and fauna of the Franklin Falls Project area, identify areas of exemplary natural communities and rare species, and provide management recommendations for their protection.

No state listed plant, mussel, herptile, grassland bird or wetland bird species were found. The Cooper's hawk, a state threatened species, was observed in an aspen stand in Compartment 4 along Shaw Cove Road.

Although no federal or state listed plants were located during the survey, a somewhat extensive population of butternut (*Juglans cinerea*) was located in the project area. It is considered to be in danger because of its rarity in New Hampshire, and was listed as a candidate (C2) species by the US Fish and Wildlife Service (USFWS) before the elimination of the C2 list by the USFWS. It is frequently found in hardwood floodplain areas.

A survey was done for the New England cottontail, but no populations were located. As discussed in the Fish section, brood stock of the Atlantic salmon (*Salmo salar*) are released north of Ayer's Island Dam in Bristol, and at times will "drop down" into the Franklin Falls area.

Although no rare or protected plant, mammal, herptile or mussel species were located, potential habitat was noted to be present in the project area for several herptile and mussel species. Marginal habitat was found for the spotted and Blanding's turtles (species of Special Concern in New Hampshire). Potential habitat also exists for the brook floater (*Alasmodonta varicosa*), a mussel species that is considered rare in New Hampshire.

The interspersed forests and openings in the project area provide suitable habitat for many hawk species, including the Cooper's hawk. Management objectives for these species would be to protect any nests found (none were located during the survey) during timber harvesting operations, with restrictions on harvesting in the vicinity of the nests. Also, if nest sites are located, the area should be protected from recreational activity during the nesting season.

The butternut tree (*Juglans cinerea*) is found throughout the project area. Although not listed as rare, it is in decline throughout its native range due to butternut canker disease. If healthy trees are found, they should be reported to DRED's Forest Protection Bureau, Insect & Disease Section for possible restoration projects.

3.3 Archaeological Resources

3.3.1 Historic and Archaeological Resources

CENAE completed an archaeological reconnaissance/inventory survey of the Franklin Falls Project area during the summer and fall of 1996. In addition, an intensive

archaeological survey was performed at the site of a proposed recreational development at Profile Falls totaling 8 acres of which 4 were testable. Archaeological site locations are detailed within the survey report, however they are not to be listed here. Specific site locations are exempt from the Freedom of Information Act requirements and are not to be disseminated to the public. Under Section 110 of the National Historic Preservation Act of 1966, as amended, Federal agencies are required to identify, evaluate, inventory and nominate to the National Register of Historic Places, all cultural activities under their control.

3.3.2 Prehistoric Resources

Archaeological field investigations resulted in the discovery of ten (10) prehistoric archaeological sites which have the potential to contribute information concerning the prehistory of the Pemigewasset River basin in south-central New Hampshire. The integrity of these sites is generally very good to excellent with diagnostic materials indicating an occupation dating from the Woodland Period (approximately 3,000 to 1,000 years ago). In addition, areas of high and moderate archaeological potential have been identified throughout the project area. Areas of high prehistoric sensitivity include portions of all forest compartments to varying degrees. Compartments 1 and 12 have only small areas of high sensitivity for instance. Areas of moderate sensitivity for prehistoric resources are located in all compartments except Compartment 1.

Further subsurface testing would be required in order to determine the full extent of site integrity. In addition, further study, which could consist of additional test pits at specific intervals from the sites, would be required to make determinations of potential site eligibility to the National Register of Historic Places. Consequently, avoidance of each of the above site locations is recommended. Sites should be monitored periodically by staff and any unauthorized excavating or collecting at these areas immediately reported to CENAE archaeologist or the New Hampshire State Archaeologist.

In areas deemed sensitive for prehistoric resources, further testing is recommended prior to such developments as listed in the OMP cultural resource checklist. All development activities will be reviewed on a case-by-case basis. Areas of low sensitivity would require no further archaeological investigations.

Prior to the implementation of any forest management activities on Corps fee lands, DRED will consult and coordinate with the NH State Archaeologist for potential impacts on cultural resources. Any required survey or testing will be accomplished prior to any forest management activity with the concurrence of the State

Archaeologist. Copies of all correspondence will be provided to the CENAE archaeologist, who reserves the right to make recommendations or determinations, as required, and in compliance with Section 110 of the National Historic Preservation Act.

3.3.3 Historic Resources

The Reconnaissance study identified 187 sites of which 127 were located in the field. The identified sites consist of residences, farmsteads, mill complexes, factories, churches, schools, bridge abutments, railroad-related structures, and stores. These sites date from the latter half of the nineteenth century to the early twentieth century with some possibly dating back to the eighteenth century. In addition, sixty (60) documented sites were recorded; however, they were not verified in the field. All above sites (187) can be thematically linked and have the potential to contribute information concerning isolated and nucleated rural settlement and industrial development in south-central New Hampshire. Areas of high potential for historic resources include forest compartments 2, 4, 5, 6, 7, 9, 10, 11, and 12. Moderate potential for historic archaeological resources include all compartments.

3.3.4 Identified Historic Sites

The archaeological investigations resulted in the identification of 127 identified historic sites including one previously undocumented historic dump site. All sites, with one exception (H-28/Congregational Church), were found to have either poor to fair, fair, good, or very good physical integrity based on the condition of visible cultural remains. However, because no subsurface testing of the historic sites was conducted, an accurate assessment of the integrity and research value of these sites cannot be made. Recommendations for these sites are based on their above-ground physical integrity together with potential information content based upon the historic contexts developed in Chapter 5 of the survey report. Avoidance is recommended for 126 of the above historic sites. Should future development or disturbance be planned, then further research, documentation, and subsurface testing may be required in order to determine the potential eligibility of these resources for listing on the National Register of Historic Places. The remaining identified site (H-28) in Hill is not considered to retain any physical integrity or research value based upon the extent of disturbance from bulldozing during the removal of the church.

Protective measures for historic sites are similar to those for the prehistoric resources. Stabilization methods to protect against ongoing threats from natural processes could be instituted as part of the dam/reservoir forest management plan. Forest management activities under the DRED license will be carried out in accordance with federal and

state law. Compliance requirements for forest management activities relative to historical sites or sensitive areas are identical to those for prehistoric resources. Activities may include cutting of underbrush and small trees together with the replacement and removal of fallen foundation stones. Stones should not be replaced if their original location is not known. No grubbing or earthmoving should occur. A maintenance schedule should be maintained to keep vegetation growth low in these areas. Erosion control is recommended at the mill complex sites and farmsteads located adjacent to the river and tributary streams. Staked hay bales or siltation fencing could be used to assist with erosion control in these areas.

3.3.5 Unidentified Documented Historic Sites

Sixty documented but unidentified historic sites and other historic resources are likely to be present in areas of high and moderate historic archaeological sensitivity. These sensitive areas were selected based upon the following variables: proximity to settlement areas, transportation routes, water power and freshwater sources, and other known or identified historic sites. Additional archaeological investigations should be undertaken in areas of high and moderate sensitivity prior to any future development as indicated in the OMP cultural resources checklist. Areas assigned a low sensitivity for archaeological resources would not require any further investigations.

3.4 Recreation Resources

3.4.1 Suitability of the Reservoir for Recreational Use

The Franklin Falls Project and the adjacent relatively undisturbed environment provide excellent year round opportunities for outdoor recreational activities. Opportunities for water and land based activities are available along the 11.3 mile reach of the Pemigewasset River. A network of roads and trails provide nonvehicular day use access to tree covered banks, small clearings and vistas for plant and wildlife observation.

The Pemigewasset meanders through wooded areas of white pine, oak, maple, beech and birch. The mix of forest, field and stream provide habitat for a wide range of fish and wildlife. Anglers can fish for perch, pickerel, horned pout, and smallmouth bass in the river for stocked trout in the tributaries, especially Smith River. Hunting for deer, pheasant (stocked) and small game is permitted during the hunting season.

Resource inventories have been used to verify that recreational use will not compromise protection of natural and cultural resources.

3.4.2 Natural and Scenic Qualities

The Franklin Falls Reservoir lies within a narrow section of the Pemigewasset River Valley characterized by steep side slopes and gently sloped bottom lands. During periods of normal flow, the river meanders along the valley floor. Portions of the bottom lands have been cleared and maintained in successional stage of vegetation. The remainder is heavily wooded with a large variety of exemplary natural communities and natural communities of local significance. These conditions provide habitat for a wide variety of wildlife. Excellent scenic views are provided at the dam overlook area, the dam itself, and at Profile Falls. Profile Falls is a natural waterfall formed by waters of the Smith River cascading over a ledge outcrop. Trails on both sides of the river provide scenic views of the Falls.

The combination of topographic relief, water features, and diversity of vegetative cover and wildlife provide an attractive varied landscape and an aesthetically pleasing experience for visitors. Continuation of past management practices to provide the greatest diversity of plant, fish, and animal species, indigenous to the area, within the multiple use frame work, will be most important to maintain the natural and scenic qualities of this project. Other past management practices to be continued are to open or maintain dramatic views and protect visual and environmentally sensitive areas.

3.4.3 Existing and Potential Recreational Activities and Facilities

The Franklin Falls Project lands are currently used for the following activities.

Water Based

fishing

boating

swimming

Land Based

interpretative programs

birdwatching

hiking

bicycling

picnicking

horseback riding

plant, wildlife and historical/cultural site viewing and photography

food gathering (berries)

hunting, trapping by permit

radio plane operation

- snowmobiling
- cross country skiing
- snowshoeing
- dog sledding
- organized visitations (Boy scouts, Primitive Rendezvous, etc.)

Recreational facilities have been developed in the Project Operations area or Compartment 1, where the Corps of Engineers manages and operates the flood control function of the project. Here a Viewing Area with parking overlooks the dam and gatehouse. The Corps of Engineers has modified DRED's license to permit the establishment of part of the New Hampshire Heritage Trail within the project boundary. The Heritage Trail is a 230-mile trail system that travels the length of the state from Canada to Massachusetts. The section that crosses the Franklin falls Project is expected to be completed in 1998. When fully established the trail will enter the project area from the north near Bristol Square in the town of Bristol, follow the east side of the Pemigewasset River, proceed across the Franklin Falls Dam and exit the project on the western side of the river. A trail head and parking have been established in the Overlook Area located off Route 3A. An alternative to the development of this site is the Wayside Area located also off Route 3A and north of the Overlook Area. Piney Point has also been identified as a potential site for reclaiming woodcock and grouse habitat and/or recreational day use. The Smith River with its scenic Profile Falls draws many visitors to the westerly side of the upper reservoir in Compartments 11 and 12 for viewing, fishing and picnicking. A boat launching site could enhance the area with recreational support facilities. Shaw Cove has been identified in the Master Plan as having the potential for camping and picnic development and DRED has indicated an interest in participating if funds become available.

In addition, a series of snowmobile trails has been established and maintained in cooperation with local snowmobile clubs. These are part of a corridor system extending outside the project area. In the off-season these trails are used for other recreational activities. The Historic society of Hill has established markers and created a brochure for a self guiding tour of 12 sites within the old village in Compartment 10.

Otherwise, the recreational features in Compartments 2 through 12 are part of a multiple resource management plan, that integrates the enhancement of the low impact dispersed land and water based activities listed above with wildlife, forestry, agricultural, historical/cultural, etc. resources.

3.4.4 Visitations

The Visitor Estimating and Reporting System (VERS) is the official procedure used to compute visitation, reported in visitor hours, at Corps of Engineers projects. VERS consists of four microcomputer-based programs designed to estimate and report visitation to projects. The estimates used by VERS to compute visitation are based on recreation use surveys conducted at recreation areas where automatic counters are used to monitor vehicular traffic to estimate load factors. At the Franklin Falls Project, five counters are used to track traffic entering the project. Estimated load factors are being used in the VERS program until such time that recreation use surveys are conducted. Table 4 presents the attendance in visitor-hours at the Franklin Falls Project.

Table 4
Franklin Falls Project
ATTENDANCE IN VISITOR-HOURS

Year	
1994	96,214
1995	70,400
1996	66,400

Source: Corps of Engineers, New England District, Franklin Falls Project Office, Franklin, New Hampshire.

3.4.5 Area of Influence

Since Franklin Falls and Blackwater Projects are expected to serve the same market area, a single analysis has been undertaken in order to estimate future outdoor recreational demands on the two facilities. Franklin Falls, with more than four times as much water area and more than twice as much stream length as Blackwater Reservoir, will continue to attract a major portion of the visitors within the area. Primary and secondary areas of influence have been defined for the market area. The number of communities and persons residing within an approximately 10 mile radius or primary market area was estimated at 22 communities with a 1990 population of 94,706, including the city of Concord with 36,006 inhabitants. An additional 76,420 residents live in 21 communities which reside between the 10 and 20 mile areas. See Figure 2.

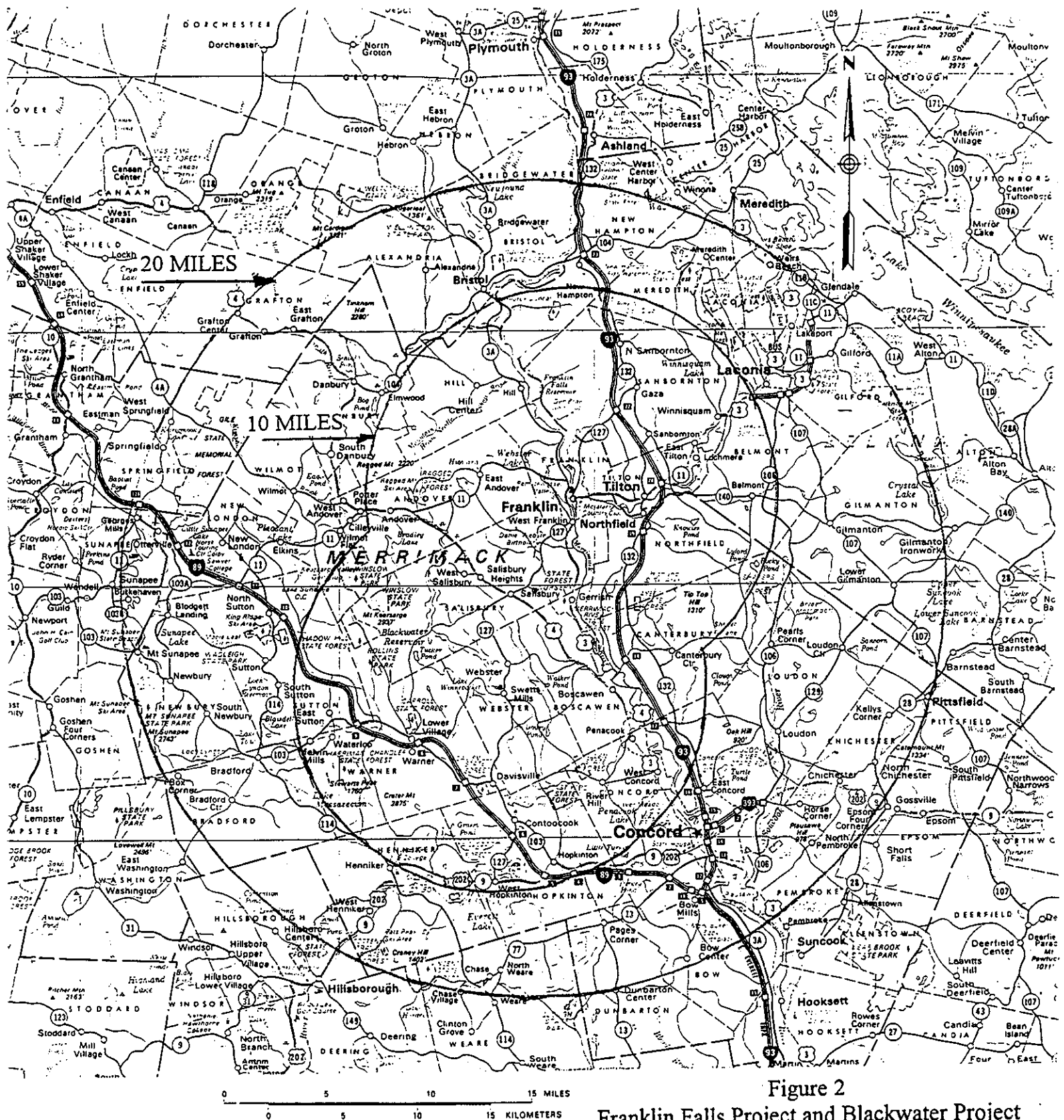


Figure 2
 Franklin Falls Project and Blackwater Project
 OUTDOOR RECREATION MARKET AREAS

3.4.6 Regional Demands

New Hampshire Outdoors - State Comprehensive Outdoor Recreation Plan (SCORP) 1994-1999 (July 1994) was prepared by the NH Office of State Planning (OSP) with assistance from DRED and the Land and Water Conservation Fund (L&WCF). It serves as the state's official policy plan for outdoor recreation and conservation for the indicated period. The SCORP provides an overview of demand for residents of the State of New Hampshire to the year 2015. It does not indicate geographic distribution. More detailed analysis of local conditions is needed for regional and community analyses. Since some outdoor activities such as camping, fishing, golfing, and skiing draw from other states, it is possible that the projected needs are understated. In 1993, the OSP distributed the SCORP Outdoor Recreation Questionnaire to community leaders in order to gain a better understanding of recreational needs. The result was the need ranking for the state presented in Table 5. It also presents the projected recreational facility needs to the year 2005 based on population gains and coefficients of utility needs per 1000 inhabitants.

3.4.7 Regional Demands on Franklin Falls and Blackwater Project Facilities

CENAE estimated the projected facility needs for the Franklin Falls and Blackwater market area for the years 2000 and 2005, as well as 2002, the terminal year for the Master Plan based on a portion of the state's projected needs. The SCORP estimates that the population of the State of New Hampshire will increase from 1,109,117 inhabitants in 1990 to 1,335,748 in 2015 or a gain of about 20.4 percent for the 25 year period. The primary market area for the Franklin Falls and Blackwater Projects comprised about 8.5 percent of the state's population in 1990. The Lakes Region Demographic Profile (June 1993), prepared by the Lakes Region Planning Commission, found a higher rate of population increase for its region compared to that of the state. The Commission comprises more than one half of the communities in the primary market area. It was assumed the recreation facility needs for the Franklin Falls and Blackwater projects market area would comprise a higher portion of the state's needs and was estimated at 10 percent. In turn, the Franklin Falls Project area has the potential for satisfying a portion of the regional demand for the following facilities, that have been ranked high in need by the New Hampshire SCORP.

Table 5
**1993 RECREATIONAL FACILITY NEEDS RANKING
 AND PROJECTIONS**
 (Shown in Descending Rank)

1993 NH Needs Rank*	Facility	P r o j e c t e d N e e d s				
		New Hamp.		FF & BW		Market
		2000	2005	2000	2002	2005
1	Softball/Baseball Fields	71	134	7	9	13
2	Tennis Courts	61	116	6	8	12
3	Trails (Miles)					
	- Hiking	142	269	14	19	27
	- Snowmobile	251	476	25	34	48
4	Outdoor Basketball	52	98	5	7	10
5	Playgrounds	32	61	3	4	6
6	Swimming Pool/Beaches	41	78	4	6	8
7	Community Centers/Parks	386	733	38	53	73
8	Gymnasiums	16	31	2	2	3
9	Skating/Hockey Rink	12	23	1	1	2
10	Tracks	3	5	0	0	0
11	Picnic Tables	515	977	52	70	98
12	Bicycle Paths	not projected				
13	Boat Launches	116	220	12	15	22

*Market Area includes twenty-two cities and towns within ten miles of the projects.

Sources: -New Hampshire: New Hampshire Office of State Planning, Statewide Comprehensive Outdoor Recreation Plan 1994-1999 (July 1994)

-FF and BW: Corps of Engineers, New England District

3.4.7.1 Softball/Baseball Fields, Outdoor Basketball, & Playgrounds

These facilities respectively rank first, fourth and fifth New Hampshire's recreational needs. Although project lands could likely be developed to accommodate these facilities, it remains to be seen whether the remote location of the project would be convenient for communities and organizations.

3.4.7.2 Hiking and Snowmobile Trails

In the 1993 questionnaire, hiking and snowmobile trails ranked third in the state's outdoor recreational needs. In a similar survey, the 1987 NH Community Recreation Leaders Survey reported the top sixteen recreational facilities needs. Trails were not among these. Hiking trails parallel on the east and west sides of the Pemigewasset River. The east trail has been designated as a part of the 230 mile Heritage Trail that will traverse the state from Canada to the Massachusetts border. The west trail follows the old Route 3A and an abandoned railroad bed. The existing trail system can support considerable growth in visitations. Future potential is limited to developing short trails to provide visual access to a planned forest management demonstration area, the exemplary natural communities identified in the Master Plan, and to support interpretative programs for natural and cultural resources and environmental education. Support services including brochures, maps, and signage would encourage the use of the trails. Other trails are available within the Squam and White Mountain areas.

Designated snowmobile trails generally follow the two trails described above that parallel each side of the Pemigewasset River, except the east side trail does not extend into New Hampton. Future snowmobile development potential consists principally of an interest in extending the system to provide a crossing of the Pemigewasset River at the Franklin Falls Dam. Existing trails within a 20 mile radius of the project include the continuation of these trails and another trail to the east of the project.

3.4.7.3 Picnic Tables

The SCORP projects a need for about 800 picnic tables for the state by the year 2003. An estimated 80 would be required in the primary FF and BW market area. Presently there are two picnic tables located in the Viewing Area. Picnic tables existed but have since been removed from the Overlook Area. The Corps development plan includes the installation of approximately eight picnic tables and grills, as well as, two new parking areas on the south side of the Smith River in Compartment 11 in the day use area. The bridge over the Smith River at old Route 3A and connecting Compartments 11 and 12 in the Profile Falls area is due to be repaired in 1998. The project area has

a number of appropriate sites for the placement of picnic tables including the Overlook Area, which is conveniently located off Route 3A and at Piney Point. An alternative site suggested by the public is the development of the Wayside Area also located off Route 3A and north of the Overlook Area. At Shaw Cove, the existing boat access could be improved and the area appears suitable for picnic tables, camping and support facilities.

3.4.7.4 Boat Launches

Based on the NH SCORP, this study projects a need for an estimated additional 18 boat launches in the FF and BW market area. Currently a boat launch operates at Shaw Cove in Compartment 4 and a canoe launching site has been identified in the Profile Falls area. Another potential site is along the Pemigewasset at the north end of Compartment 10. An easement for the Public Service Company of New Hampshire to install and maintain access to the Pemigewasset River below the Bristol Bridge and along Coolidge Woods Road in Compartment 7 has been approved. The nature of the Pemigewasset River does not lend itself to becoming a major destination area for boaters. Within a 20 mile radius of the project are Newfound, Webster, Sunapee, Little Sunapee, Hopkinton, Everett, and Highland Lakes and Lakes Winnesquam, Waukegan, Massasecum, and Winnepesaukee. These bodies of water are more conducive to recreational water activities than the Pemigewasset River.

Considering the authorized purpose of the project is flood control, the recreational plan for the project area will support dispersed recreational activities. Boat launching and other support facilities are under consideration for the Profile Falls area, Shaw Cove and in Compartment 10. Piney Point peninsula, located downstream from the dam, is a possible future site for wildlife and/or recreational development. These developments will depend largely on partnerships with state, regional, and local entities.

IV. PUBLIC INVOLVEMENT AND COORDINATION

Coordination with other agencies and the public is an integral part of the Master Planning process. A stated purpose of the Master Plan is to provide the best combination of responses to regional and ecosystem needs, project resource capabilities and suitabilities and expressed public interests and desires. Public interest was addressed initially with the issuance of a Public Notice on 30 October 1996 which invited communities within a 20-mile radius of the dam and beyond, elected officials and local and regional organizations to participate in and provide input to the plan. A meeting was held at the Franklin Middle School on 26 March 1997 for those who had earlier expressed an interest. The draft Master Plan, which was made available at local libraries and town halls during the review period, provided another opportunity for the public to comment on the plan.

The solicitation of public comment resulted in the following:

- (a) Support for the improvement of boat launch facilities at Shaw Cove.
- (b) Proposed extension of the snowmobile trail system across the upstream slope at Franklin Falls Dam.
- (c) Proposed development of the Wayside Area as a snowmobile trailhead. Some members of the public expressed that the openness of the Wayside Area also had the advantage of being easier to supervise than the Overlook Area.
- (d) Proposed pedal bicycle trails along with the need to cross the Pemigewasset River at Franklin Falls Dam.
- (e) Support for the need to publicize the features and facilities at the Franklin Falls Dam in association with conservation commissions, planning boards, chambers of commerce, and with the assistance of volunteers.

V. RESOURCE MANAGEMENT OBJECTIVES

5.1 Introduction

Resource management objectives were developed to guide future design, development and management of the natural and developed resource base. These objectives will obtain the greatest possible benefit in meeting the needs of the public and protecting and enhancing environmental quality. At a minimum, resource objectives are consistent with the authorized project purpose, flood control, and consistent with Federal laws and directives, regional needs, resource capabilities, and expressed public desires. In addition to the above, the following resource objectives are specific to the natural, cultural, and developed resources of the Franklin Falls Project, New Hampshire.

5.2 Project-wide Objectives

5.2.1 Natural Resources

The overall objectives to protect and enhance natural resources, including wetlands, fish and wildlife habitat, and forestry resources were prepared in cooperation with the Corps of Engineers, which administers the natural resource program, and DRED which manages it under license. These objectives are:

- (a) Monitor to identify newly established threatened or endangered species and protect them in accordance with Federal and state laws and directives.
- (b) Protect wetlands, including potential vernal pools, from construction activity, (roads and trail construction, etc.) and during timber harvesting activities, using, among others, protective buffers.
- (c) Ensure that the several identified exemplary natural communities remain intact, and are enhanced and protected.
- (d) Promote those identified exemplary natural communities and natural communities of local significance that are of interest to the public and are worthy of particular visual access, without impairing protection of the resource.
- (e) Provide visual access to those communities, as appropriate. Visual access may include openings for viewing, signage and interpretative programs, literature, and maps.

- (f) Manage forest land under sustained yield for the production of forest products.
- (g) Improve vegetation health and vigor for sustained yield timber production.
- (h) Effect management practices that provide the greatest natural diversity of plant, fish and wildlife species indigenous to the area, compatible with the authorized purpose of the project.
- (i) Continue annual fish stocking programs.
- (j) Monitor wildlife species within the project limits to determine the overall habitat suitability.
- (k) Monitor wildlife species within the project limits and the effects of management practices on them.
- (l) Maximize wildlife carrying capacity and recreational use of forested areas through maintenance of a diversity of age groups, species composition (timber, open fields, etc.) and early successional growth with timber harvesting.
- (m) Maintain areas of the project as open space with public access to help meet existing and future regional diversity for recreational activities, visual appeal and vegetation and wildlife enhancement.
- (n) Promote and evaluate public requests for the use of the project lands including special event activities, agriculture, etc.

5.2.2 Cultural Resources

- (a) Protect known and documented prehistoric and historic archaeological sites. Measures may include, but not be limited to:

- (1) Avoid known sites, if possible. If resources cannot be avoided, every effort should be made to minimize these impacts. If impacts to significant resources are unavoidable, then further archaeological investigations may be required prior to implementation. In all cases, development activities should be reviewed by a CENAE staff archaeologist and may require coordination with the New Hampshire State Historic Preservation Officer (NH SHPO).

(2) Monitor the project area for evidence of unauthorized excavation or collection of cultural resources and damage to sites. Known sites should be maintained and preserved as important project resources.

(b) Consult with the CENAE archaeologist prior to development or disturbance in archaeologically sensitive areas as defined in the Archaeological Reconnaissance Report. These sensitive areas have the potential to contain additional archaeological resources and are afforded the same protection as known sites. Further evaluation and testing may be required in areas of sensitivity, as determined on a case-by-case basis by CENAE archaeologists, and in consultation with NH SHPO.

(c) Support interpretive programs for historic and archaeological resource where appropriate and in accordance with Federal laws and directives. Cultural resources are a public benefit and should be available for public enjoyment, enlightenment and education.

5.2.3 Recreation Resources

(a) Maintain existing recreation areas to enhance specific and dispersed/passive recreation experiences, public health, safety, and universal access where possible for a diverse population.

(b) Look for opportunities and promote development of suitable recreation sites on a sustained basis to afford the public a diversity of recreational opportunities and/or enhance public use of the project resources.

(c) Maintain existing trails on project lands.

(d) Identify, develop and promote trails through project lands to meet regional needs.

(e) Maintain and continue to improve the Interpretive Services and Outreach Program to enhance the public's understanding and appreciation of the role of the Corps of Engineers in the administration and management of Franklin Falls Project land.

(f) Provide recreational activities for both consumptive and non-consumptive use of fish and wildlife, including continuation of the existing fish and pheasant stocking programs.

(g) Optimize the use of leveraged resources to maintain and provide quality public experiences at Corps water resources projects.

5.3 Specific Objectives for Management Units

The Franklin Falls Project has been divided into twelve compartments based on natural features and administrative limits. See Figure 1. Table 6 summarizes the natural communities and wetlands and their location by compartment. The particularity of some of the compartments requires additional objectives. Compartments 1,4,10,11, and 12 provide the potential for future specific recreational development. In Compartments 10, the town of Hill has established an historical trail. The Heritage Trail extends from Compartments 1 through 7. The management of dispersed recreational development, extending throughout the entire project area, supports the development of minimal recreational facilities.

Because of the need to protect the confidentiality of the location of prehistoric and historic sites, they are not referenced in this section.

All compartmental areas cited in the next pages include both land and water, including the Pemigewasset River. The riverine system within the project boundaries contains an estimated 391.2 acres within the channel. These comprise more than half of the wetlands identified in the project area.

Table 6
Franklin Falls Project Master Plan
SUMMARY NATURAL COMMUNITIES AND WETLANDS

<u>Compartments</u>	Observation Points	Observation Points	
	<u>Exemplary Natural Communities</u>	<u>Local Significance</u>	<u>Wetlands</u>
1	None	70	4
2	None	None	8
3	2,6,3,18	1,4,5,7,16,19,19a,77	4
4	46,51,52	None	13
5	20,23,46,55,60	28	5
6	32,57,58,59,73,74,78,79	None	11
7	75,76	None	7
8	9,10	8,63,71	7
9	24	None	17
10	40	27,39	6
11	None	None	8
12	34	36	7
Totals	26*	16	97**

Exemplary Natural Communities

Dry sandy riverbluff opening/woodland	2,6,23,32,52,78
Little bluestem grassland	3
Rich mesic forest	20,55
Floodplain forest and/or thicket	9,10,18,40,46,51,57, 59,60,73,74,75,76
Floodplain oxbow pond	24,34,79
Floodplain meadow	58

Natural Communities of Local Significance

Dry pitch pine-Appalachian oak Forest/woodland	63
Dry Appalachian oak-(hickory) forest	70,71
Forest seep	8,19,19a,27
Hemlock-beech-oak-pine forest	1,5,28,77
High energy riverbank	4,7,16,39
Mesic Appalachian oak-sugar Maple-beech-hemlock forest	36

* Number 46 extends into compartments 4 and 5.

** Those wetlands extending into two compartments were counted twice.

5.3.1 Compartment 1

5.3.1.1 Features

Compartment 1, approximately 328.6 acres, is located across and covering the easterly portion of the Pemigewasset River. It is designated for Project Operations and contains the management and operational infrastructure for fulfilling the authorized flood control purpose of the project. It is administered and managed by the Corps of Engineers.

Gate Brook enters the Pemigewasset River from the east bank and downstream from the dam. About 67.2 acres are occupied by the flood control infrastructure including the dam and appurtenant facilities, offices, warehouses, etc. Forest covers approximately 261.4 acres. The forest is dominated by 91.8 acres of red oak, 77.3 acres of stands of gray birch and red maple, and 75.6 acres of aspen and the remainder in separate stands of red and white pine. Compartment 1 contains a natural community of local significance, a dry Appalachian oak-(hickory) forest and four wetlands. A palustrine shrub/scrub broad-leaved deciduous wetland straddles Compartments 1 and 2. A palustrine emergent vegetation, persistent wetland, and two palustrine open water wetlands, and possible vernal pools, are located in Compartment 1.

Other infrastructure has been developed or is in progress to enhance the public's understanding and appreciation of the role of the Corps of Engineers in the development and administration of Franklin Falls Project lands. These include a Viewing Area with parking that overlooks the dam, gatehouse and river valley. Piney Point has the potential for integrated wildlife and recreational development. It provides good habitat and viewing opportunities for woodcock and grouse. The Wayside Area offers potential for future recreation development. DRED manages an Overlook Area with parking. It provides a scenic view of the dam from Route 3A. Compartment 1 also provides access to the Heritage Trail, which proceeds across the dam to the east side of the Pemigewasset River.

5.3.1.2 Objectives

1. Fulfill the authorized project purpose: flood control.
2. Protect the four identified wetlands.
3. Promote recreational, interpretive, and outreach activities.

4. Implement the project-wide natural resources, cultural resources and recreation management objectives, as appropriate.

5.3.2 Compartment 2

5.3.2.1 Features

Compartment 2, 182.7 acres, is located on the east side of the Pemigewasset River in the city of Franklin from the northern limit of Compartment 1 to Salmon Brook. The compartment is dominated by 135.3 acres of white pine cover with stands of red oak and brush.

Compartment 2 contains no notable natural communities. The following wetlands were identified.

- 2 Palustrine shrub/scrub broad-leaved deciduous wetlands, straddling Compartments 1 and 2 and Compartments 2 and 3,
- 2 Palustrine forested needle-leaved evergreen wetlands,
- 2 Palustrine open water wetlands, that are potential vernal pools,
- 1 Palustrine forested broad-leaved deciduous wetland,
- 1 Palustrine aquatic bed vegetation, rooted vascular wetland, straddling Compartments 2 and 3.

A portion of the designated Heritage Trail passes through this compartment.

5.3.2.2 Objectives

1. Protect the wetlands.
2. Implement the project-wide natural resources, cultural resources and recreation management objectives, as appropriate.

5.3.3 Compartment 3

5.3.3.1 Features

Compartment 3 is the smallest of the compartments with 103 acres. It is located on the east side of the Pemigewasset River between Salmon and Weeks Brooks. The forest cover is principally stands of white pine (46 acres) and stands of white pine-red oak-red maple (43.8 acres) interspersed with stands of white pine-hemlock. It contains half of the sixteen identified natural communities of local significance and four of the twenty-six exemplary natural communities. These are:

- 3 Hemlock-beech-oak-pine forests,
- 3 High-energy riverbanks,
- 2 Forest seeps,
- 2 Dry sandy riverbluff openings,
- 1 Little bluestem grassland,
- 1 Floodplain complex.

Compartment 3 also contains two palustrine shrub/scrub broad-leaved deciduous wetlands, one of which straddles Compartment 2 and 3 and two palustrine aquatic bed vegetation, rooted vascular wetlands straddling Compartments 2 and 3 and 3 and 4.

A portion of the designated Heritage Trail passes through this compartment.

5.3.3.2 Objectives

1. Protect, and promote for possible visual access, the four exemplary natural communities and protect the wetlands.
2. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.4 Compartment 4

5.3.4.1 Features

Compartment 4, with approximately 392.8 acres is located in the project area on the east side of the Pemigewasset River. It extends northerly from Weeks Brook to Knox Brook and is the second largest of the compartments. Although the vegetative cover is diverse, it is dominated by white pine or white pine interspersed with red oak red maple, and hemlock. A 7.8 acre stand of Norway spruce and 6.9 acre plot of aspen have also been identified. Approximately 63.1 acres is grass or old fields and 57.6 acres in brush. Three exemplary natural communities have been identified. Two are floodplain complexes, one of which straddles Knox Brook separating Compartments 4 and 5, and a third is a dry sandy riverbluff opening/woodland.

The compartment is host to the following wetlands.

- 1 Palustrine aquatic bed vegetation, rooted vascular wetland straddling Compartments 3 and 4,
- 2 Palustrine shrub/scrub broad-leaved deciduous wetlands, one of which straddles Compartments 4 and 5,
- 1 Palustrine open water wetland straddling Compartments 4 and 5,
- 1 Palustrine open water wetland that is a potential vernal pool,
- 3 Palustrine emergent vegetation, persistent wetlands,
- 1 Palustrine forested needle-leaved evergreen wetland,
- 4 Palustrine forested broad-leaved deciduous wetlands.

A portion of the designated Heritage Trail passes through this compartment.

Shaw Cove, which is located on the north bank of Weeks Brook at its confluence with the Pemigewasset River, has an existing boat launch which could be improved. It also has the potential for developing parking facilities.

5.3.4.2 Objectives

1. Protect, and promote for possible visual access, the three identified exemplary natural communities, and protect the wetlands.
2. Explore the recreational potential of Shaw Cove.
3. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.5 Compartment 5

5.3.5.1 Features

Compartment 5, located on the east side of the Pemigewasset River between Knox and Prescott Brooks, covers approximately 227.5 acres. The compartment is characterized by diverse vegetative cover. Nearly one half is white pine or white pine in combination with red oak and red maple. A large 59.3 acre stand of red oak, two stands each of hemlock and silver maple-beech-yellow birch respectively totaling 18.7 and 15.6 acres, 25 acres of brush and other cover complete the vegetation for the compartment.

Five exemplary natural communities and one natural community of local significance have been identified in the compartment. These are two floodplain complexes, one of which straddles Compartments 4 and 5 on Knox Brook, two rich mesic forests, a dry sandy riverbluff opening/woodland, and a hemlock-beech-oak-pine forest.

The following wetlands have been identified:

- 3 Palustrine shrub/scrub broad-leaved deciduous wetlands, one of which is shared with Compartment 4,
- 1 Palustrine open water wetland straddling Compartments 4 and 5,
- 1 Palustrine forested broad-leaved deciduous wetland.

A portion of the designated Heritage Trail passes through this compartment.

5.3.5.2 Objectives

1. Protect, and promote for possible visual access, the five identified exemplary natural communities, and protect the wetlands.
2. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.6 Compartment 6

5.3.6.1 Features

Compartment 6 is approximately 259.5 acres and located on the east side of the Pemigewasset River between Prescott Brook to an unnamed brook near stone bound marker 335. The compartment includes Sumner and several other islands and eight of the twenty-six identified exemplary natural communities. The vegetative cover is dominated by 145 acres of white pine and communities of white pine with red oak, red maple, and hemlock. Also present are 50 acres of aspen and small plots of basswood American elm-red maple, grass/old fields (6.5 acres) and brush (36.5 acres).

The identified exemplary natural communities are:

- 4 Floodplain complexes of forest or thicket,
- 1 Floodplain oxbow pond and 1 Floodplain Meadow,
- 2 dry sandy riverbluff opening/woodlands.

The identified wetlands are:

- 5 Palustrine emergent vegetation, persistent wetlands on Sumner Island,
- 2 Palustrine shrub/scrub broad-leaved deciduous wetlands,
- 3 Palustrine forested broad-leaved deciduous wetland,
- 1 Palustrine open water wetland ,which is a potential vernal pool.

A portion of the designated Heritage Trail passes through this compartment.

5.3.6.2 Objectives

1. Protect, and promote for possible visual access, the eight identified exemplary natural communities, and protect the wetlands.
2. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.7 Compartment 7

5.3.7.1 Features

Compartment 7, comprising about 201.5 acres and located on the most northerly limit of the project area east of the Pemigewasset River, extends approximately from stone bound marker 335 to the project limit north of Bristol Road in Bristol. The vegetative cover comprises approximately 50 percent white pine and white pine clustered wit red oak and red maple and about one quarter of the area each in red oak (47.5 grass/old fields (53 acres).

Compartment 7 has two exemplary natural communities or floodplain complexes. The compartment contains three palustrine shrub/scrub broad-leaved deciduous wetlands, three palustrine forested broad-leaved deciduous wetlands and one open water wetland, which is a possible vernal pool.

A portion of the designated Heritage Trail passes through this compartment.

5.3.7.2 Objectives

1. Protect, and promote for possible visual access, the two identified exemplary natural communities, and protect the wetlands.
2. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.8 Compartment 8

5.3.8.1 Features

Compartment 8, comprising 221 acres, is located on the west side of the Pemigewasset River, extends northerly from Compartment 1 to an unnamed brook near stone bound markers 168 and 169. The vegetative cover is nearly one half brush (81.2 acres) and grass/old fields (19.9 acres) and about one-third white pine or white pine with red oak, black oak, and red maple and separate stands of aspen (21.3 acres) and red maple (9.8 acres).

Two exemplary natural communities and three natural communities of local significance have been identified in Compartment 8: two floodplain complexes, and a dry pitch pine-Appalachian oak forest /woodland, a dry Appalachian oak-(hickory) forest and a forest seep. In addition the following wetlands have been identified.

- 4 Palustrine scrub/scrub broad-leaved deciduous wetlands,
- 1 Palustrine forested needle-leaved evergreen wetland,
- 1 Palustrine open water wetland,
- 1 Palustrine emergent vegetation, persistent wetland.

5.3.8.2 Objectives

1. Protect, and promote for possible visual access, the two identified exemplary natural communities, and protect the seven wetlands.
2. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.9 Compartment 9

5.3.9.1 Features

Compartment 9 is the largest compartment with about 409.5 acres. It is located on the west side of the Pemigewasset River, between an unnamed brook near stone bound markers 168 and 169 to a road crossing the project boundary line at stone bound marker 118. Over 60 percent of the vegetative cover is white pine and white pine with red oak and red maple, about 20 percent is grass/old fields (84.5 acres), and the remaining individual stands are hemlock (32 acres), red maple (8.5 acres), red oak (6.6 acres), and brush (18 acres).

One exemplary natural community has been identified in Compartment 9, a floodplain oxbow pond. The following wetlands have been identified:

- 5 Palustrine forested shrub/scrub broad-leaved deciduous wetlands,
- 5 Palustrine forested broad-leaved deciduous wetlands,
- 4 Palustrine emergent vegetation, persistent wetlands,
- 1 Palustrine emergent vegetation, persistent wetland, which is a possible vernal pool.
- 1 Palustrine aquatic bed vegetation, rooted vascular wetland,
- 1 Palustrine open water wetland, which is a possible vernal pool.

There is potential for developing a new forest management demonstration area in Compartment 9 for environmental education.

5.3.9.2 Objectives

1. Protect, and promote for possible visual access, the identified exemplary natural communities, and protect the wetlands.
2. Explore the feasibility of establishing a forest management demonstration area.
3. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.10 Compartment 10

5.3.10.1 Features

Compartment 10, with about 345 acres, is located on the west side of the Pemigewasset River, between the road crossing the project boundary line at stone bound marker 118 and the Public Service of New Hampshire (PSNH) transmission line. Nearly 60 percent of the vegetative cover is grass/open fields (203.5 acres) and about one-third is white pine and white pine with red oak and red maple. The remainder is covered by a stand of hemlock (7 acres) and a stand of silver maple-beech-yellow birch (8 acres).

Three natural communities have been identified in Compartment 10: a floodplain complex, a forest seep and a high energy riverbank. In addition, there are six wetlands.

- 3 Palustrine shrub/scrub broad-leaved deciduous wetlands,
- 1 Palustrine forested broad-leaved deciduous wetland,
- 1 Palustrine aquatic bed vegetation, rooted vascular wetland,
- 1 Palustrine open water wetland, which is a possible vernal pool.

A potential boat launching site has been identified along the Pemigewasset River at the north end of Compartment 10. See Figure 4.

5.3.10.2 Objectives

1. Protect, and promote for possible visual access, the identified exemplary natural communities, and protect the wetlands.
2. Explore the potential for a boat launching site.
3. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.11 Compartment 11

5.3.11.1 Features

Compartment 11, with about 224.2 acres, is located on the west side of the Pemigewasset River between the PSNH transmission line and the Smith River. The Smith River, which is the divide between Compartments 11 and 12, features the scenic Profile Falls. The compartment includes approximately 15.4 acres along the Smith River, including Profile Falls, that is operated by the Corps of Engineers for recreational purposes. The vegetative cover comprises about one half white pine and white pine with red oak and red maple and about one quarter grass/old fields (61.6 acres). The remaining area has small individual stands of aspen (3.6 acres), hemlock (10.8 acres), red oak (24.9 acres), and brush (8.6 acres).

No natural communities were found in Compartment 11. The following eight wetlands were identified:

- 2 Palustrine shrub/scrub broad-leaved deciduous wetlands,
- 2 Palustrine forested broad-leaved deciduous wetlands,
- 2 Palustrine emergent vegetation, persistent wetlands,
- 2 Palustrine open water wetlands, which are possible vernal pools.

Profile Falls draw visitors to the westerly side of the upper reservoir for viewing, fishing, and picnicking. Recreational support facilities are possibilities for future recreational development.

5.3.11.2 Objectives

1. Protect the identified wetlands.
2. Promote recreational, interpretive, and outreach activities in the Profile Falls area.
3. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

5.3.12 Compartment 12

5.3.12.1 Features

Compartment 12, with about 212.1 acres, is located on the west side of the Pemigewasset River, between the Smith River and the northern limit of the project area at Bristol Square in the town of Bristol. Approximately 9.4 acres located along the Smith River, including Profile Falls, is designated for intensive recreational use and managed by the Corps of Engineers. The vegetative cover is dominated by white pine and stands of white pine with red oak and red maple (91 acres) and separate stands of red oak (42.6 acres), silver maple (15.9 acres), aspen (12.5 acres), hemlock (2.7 acres), grass/old fields (12.2 acres), brush and silver maple in combination with beech, yellow birch and basswood (20.9 acres).

One exemplary natural community and one natural community of local significance were identified: a floodplain oxbow pond and a mesic Appalachian oak-sugar maple-beech-hemlock forest. In addition the following wetlands were identified:

- 3 Palustrine shrub/scrub broad-leaved deciduous wetlands,
- 1 Palustrine forested broad-leaved deciduous wetland,
- 2 Palustrine emergent vegetation, persistent wetlands,
- 1 Palustrine open water wetlands, which is a possible vernal pool.

A boat launching site and recreational support facilities are possibilities for future recreational development.

5.3.12.2 Objectives

1. Protect, and promote for public viewing, the identified exemplary natural community and protect the wetlands.
2. Promote recreational, interpretive, and outreach activities in the Profile Falls area.
3. Implement the project-wide natural resources, cultural resources, and recreation management objectives, as appropriate.

VI. LAND ALLOCATION AND CLASSIFICATION

6.1 Land Allocation

All lands for the Franklin Falls Project have been allocated for the authorized purpose for which they were acquired: flood control. No separable land acquisitions were made for recreation, fish and wildlife or mitigation.

6.2 Land Classification

Guidance for the preparation of a Master Plan requires that allocated lands be further classified into the following categories. See Figure 3.

- Project Operations
- Intense Recreation
- Mitigation
- Environmental Sensitive Areas
- Multiple Resource Management
- Low Density Recreation
- Wildlife Management General
- Vegetative Management (Vegetative Management)
- Inactive and/or Future Recreation Areas
- Easement Lands

At Franklin Falls Dam, 3669 acres are held in fee and 15.7 acres in flowage easement.

6.2.1 Project Operations

All of the 328.6 acres in Compartment 1 are classified for Project Operations. Those lands occupied by the dam structure and appurtenant facilities, operations center, office, and maintenance facilities occupy approximately 67.2 acres. Some 261.4 acres are covered by forest and brush.

6.2.2 Intensive Recreation

Land currently developed for intensive recreational activities occupies 15.4 acres in the Profile Falls Scenic Area in Compartments 11 (6.0 acres) and 12 (9.4 acres).

6.2.3 Mitigation

No land has been acquired or designated specifically for mitigation at the Franklin Falls Project.

6.2.4 Environmental Sensitive Areas

Environmental sensitive areas are those where scientific, ecological cultural or aesthetic features have been identified. The twenty-six exemplary communities that have been identified in this study qualify as environmental sensitive areas. They are listed in Table 7 and are shown on Figure 3 and occur in all but Compartments 1,2, and 11 . They are managed to ensure that they are not adversely affected under the multiple resource management category.

6.2.5 Multiple Resource Management

All of the land in Compartments 2 through 12, except the 15.4 acres at Profile Falls, is classified as multiple resource management and managed under license to DRED. Integrated forest and wildlife management is carried out on these lands. The twenty-six exemplary natural communities require management practices for their protection. These areas will be assessed for visual access and passive and dispersed recreation activities where appropriate. Historical and archaeological resources surveys were conducted but the results are not recorded on Figure 4 because of the need to protect these resources from unauthorized disturbance. Multiple resource management also includes low density recreation, wildlife and vegetative management and inactive and/or future recreation areas. The latter are found throughout the twelve compartments. The inactive and/or future recreation areas are discussed in Chapter 3, Resource Inventory.

6.2.6 Easement Lands

Approximately 15.7 acres are held by the U.S. Government in flowage easement approximately one mile downstream of the Franklin Falls Dam.

LAND CLASSIFICATION

////// - Project Operations

~~~~~ - Intense Recreation: Profile Falls

~~~~~ - Multiple Resource Management

- Environmental Sensitive Areas (See Appendix B for locations)

Compartments

| | |
|----|-------------------------|
| 3 | 2,6,3,18 |
| 4 | 46, 51,52 |
| 5 | 20,23,46,55,60 |
| 6 | 32,57,58,59,73,74,78,79 |
| 7 | 75,76 |
| 8 | 9,10 |
| 9 | 24 |
| 10 | 40 |
| 12 | 34 |

Observation Points

Exemplary Natural Communities*

- Easement Lands: 15.7 Acres
- Mitigation: None

Exemplary Natural Communities

| | |
|---------------------------------------|--|
| Dry sandy riverbluff opening/woodland | 2,6,23,32,52,78 |
| Little bluestem grassland | 3 |
| Rich mesic forest | 20,55 |
| Floodplain complex | |
| Floodplain forest and/or thicket | 9,10,18,40,46,51,57, 59,60,73,74,75,76 |
| Floodplain oxbow pond | 24,34,79 |
| Floodplain meadow | 58 |

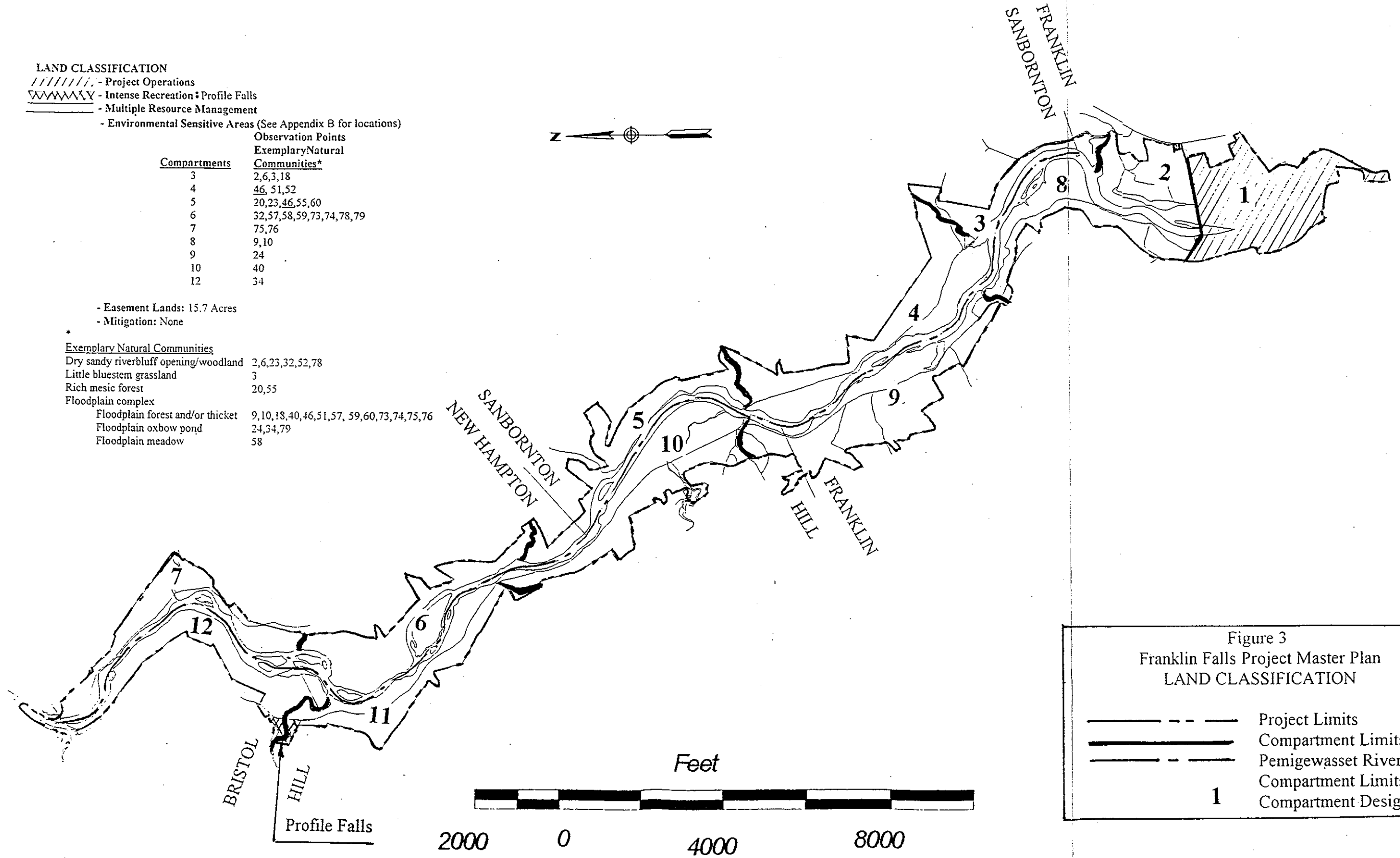


Figure 3
Franklin Falls Project Master Plan
LAND CLASSIFICATION

- Project Limits
- Compartment Limits
- Pemigewasset River & Compartment Limits
- 1 Compartment Designation

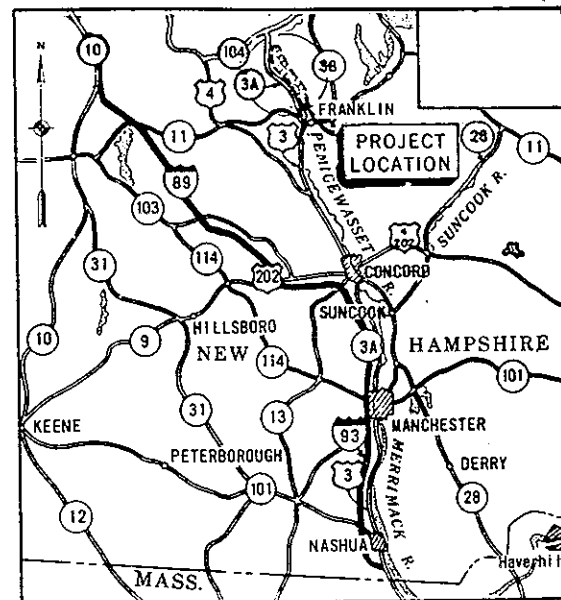
VII. RESOURCE DEVELOPMENT PLANS

The following is a list of potential development opportunities resulting from the master planning process to meet recreational, natural, and cultural resources needs at the Franklin Falls Project. See Figure 4 for their locations.

- (a) Develop two new parking areas and provide eight new picnic tables and grills at the Profile Falls day use area in Compartments 11. Also develop a new car top boat launching site with required access in Compartment 12.
- (b) Develop a new parking lot and possible camping and support facilities and provide several picnic tables to complement the existing boat ramp at Shaw Cove in Compartment 4.
- (c) Provide a new canoe launch and parking area in Compartment 10.
- (d) Provide several new picnic tables at the Overlook Area and/or the Viewing Area in Compartment 1.
- (e) Determine the feasibility and develop, as appropriate, a new trail extension for snowmobiles and cycling across the Franklin Falls Dam in Compartment 1.
- (f) Enhance/develop the Overlook Area or alternatively the Wayside Area as trailheads for the Heritage Trail and the snowmobile trail system in Compartment 1.
- (g) Improve visitor assistance program to enhance recreation and attract visitors to the Franklin Falls Project. This includes publicity, signs, marking of trails, pamphlets, maps, and the extension of hours during the week and on weekends with the cooperation of local communities, organizations, volunteers, and summer help.
- (h) Develop new short trails or otherwise provide visual access to selected exemplary natural communities, and a proposed forest management demonstration area for environmental education in Compartment 9.
- (i) Establish wildlife habitat and /or recreational access, including parking, at Piney Point in Compartment 1.

Recreation improvements and fish and wildlife enhancement activities will need to be accomplished by sharing costs with public or private agencies or groups. New recreation development is possible if developed and maintained by other public or

private agencies. Improvements or developments will require specific proposals for Corps review and approval.



VICINITY MAP

SCALE IN MILES

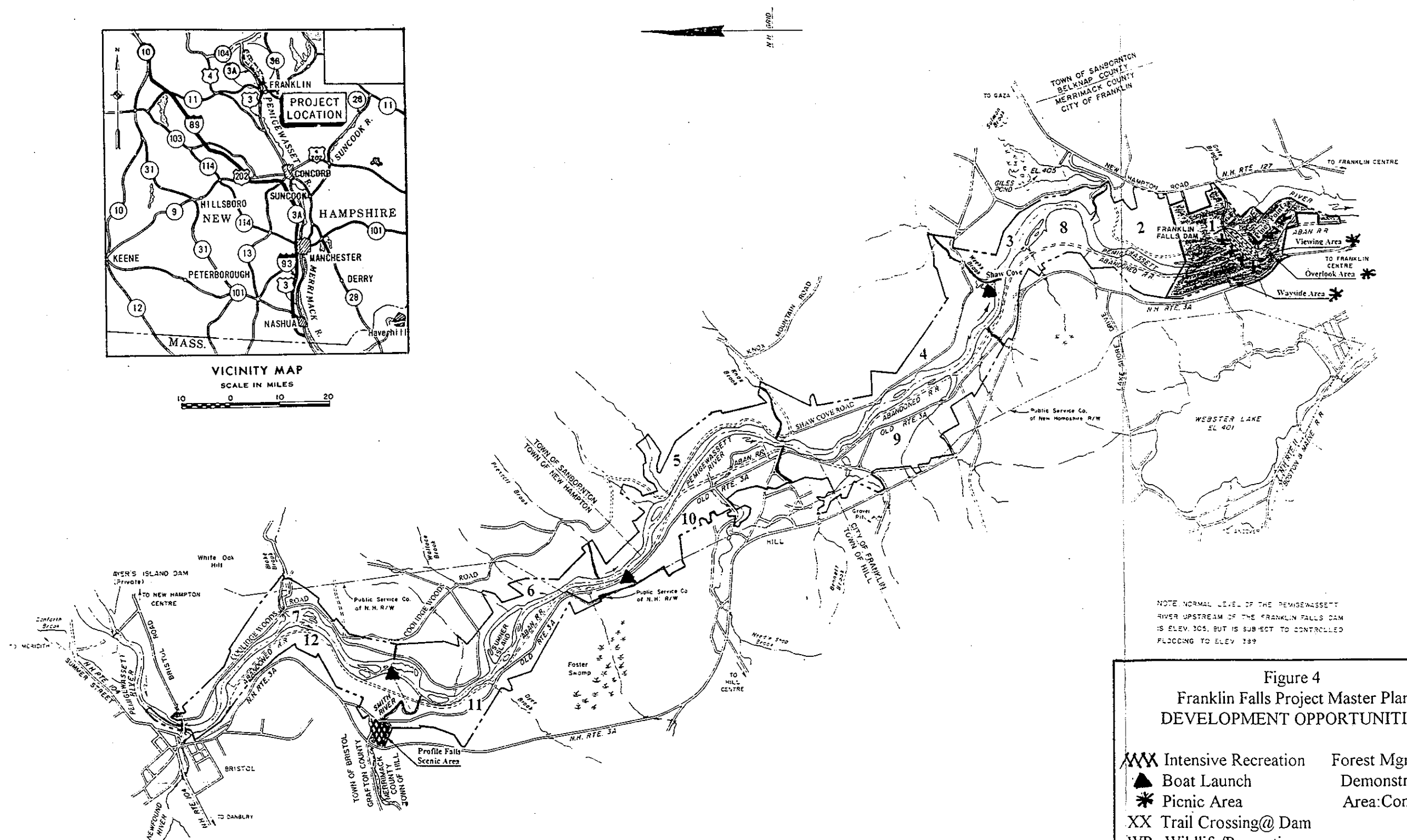
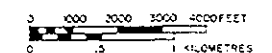


Figure 4
Franklin Falls Project Master Plan
DEVELOPMENT OPPORTUNITIES

- XXX Intensive Recreation
- ▲ Boat Launch
- * Picnic Area
- XX Trail Crossing@ Dam
- WR Wildlife/Recreation:
Piney Point
- Forest Mgmt.
Demonstration
Area: Comp. 9



VIII. CONCLUSIONS

The natural and man-made resources of the Franklin Falls Project will continue to be administered and managed to provide the best combination of responses to regional and ecosystem needs, project resource capabilities and suitabilities and public interests consistent with the authorized flood control purpose of the project. During the span of the Master Plan (1997-2002), the project's 3669 acres will continue to be administered by CENAE. DRED will continue to manage all but 344 acres to protect and enhance natural resources under its current license which expires in 2014. CENAE will manage 328.6 acres in Compartment 1 for the operation and maintenance of the damsite for flood control and 15.4 acres in Compartments 11 and 12 will be managed for intensive recreation.

Natural and man-made resources have been located, identified and analyzed, including wetlands, exemplary natural communities and cultural resources that require particular management practices for their protection. Recreational opportunities have also been identified through an analysis of regional needs and a public participation process.

The planning process has identified opportunities for the redevelopment and enhancement of facilities to support intensive recreational use, establishment or enhancement of boat launching facilities, picnic areas, visual access to selected exemplary natural communities and a proposed forest management demonstration area, and wildlife habitat. In addition, the Master Plan includes consideration of the feasibility of constructing an extension of the snowmobile, hiking and cycling networks across the Franklin Falls Dam and the enhancement of the public assistance program to attract more visitors to the facilities at the Franklin Falls Project.

All specific proposals for the development of the natural and man-made resources at the Franklin Falls Project must comply with this Master Plan, the flood control purpose of the project and the National Environment Policy Act and other federal and state requirements.

IX. RECOMMENDATION

It is recommended that the Franklin Falls Project Master Plan be approved by the district engineer as a guide to the protection, orderly use, and development of the natural and man-made resources in the project area.

APPENDIX A

FRANKLIN FALLS PROJECT FOREST AND WILDLIFE INVENTORIES

Table A-1
Franklin Falls Dam - Forest Stand Summary

| | Stand # | Cover type | Size class | Acres |
|----------------------|---------|-------------------|--------------|--------------|
| <i>Compartment 1</i> | 1 | Aspen | 3 | 51.2 |
| | 2 | Open | | 67.2 |
| | 3 | Gb-Rm | 3 | 77.3 |
| | 4 | Ro | 4 | 91.8 |
| | 5 | Rp | 3 | 10 |
| | 6 | Wp | 2 | 1.8 |
| | 7 | Wp | 3 | 4.9 |
| | 8 | Aspen | 3 | 24.4 |
| | | | Total | 328.6 |
| <i>Compartment 2</i> | 1 | Ro | 4 | 11.5 |
| | 2 | Wp | 3 | 67.1 |
| | 3 | Wp | 4 | 20.2 |
| | 4 | Wp | 4 | 39.5 |
| | 5 | Ro | 4 | 5.9 |
| | 6 | Wp | 4 | 8.5 |
| | 7 | Brush | 1 | 30 |
| | | | Total | 182.7 |
| <i>Compartment 3</i> | 1 | Wp-Ro-Rm | 4 | 6 |
| | 2 | Wp-He | 4 | 13.5 |
| | 3 | Wp | 5 | 27 |
| | 4 | Wp | 5 | 11 |
| | 5 | Wp | 5 | 8 |
| | 6 | Wp-Ro-Rm | 4 | 29.5 |
| | 7 | Wp-Ro-Rm | 4 | 8 |
| | | | Total | 103 |
| <i>Compartment 4</i> | 1 | Wp-He | 4 | 8.7 |
| | 2 | Wp-Ro-Rm | 4 | 21.2 |
| | 3 | Wp-Ro-Rm | 5 | 33.4 |
| | 4 | Brush | 1 | 3.3 |
| | 5 | Wp | 3 | 11.4 |
| | 6 | Grass / Old field | 0 | 63.1 |
| | 7 | Wp-He | 4 | 6.9 |
| | 8 | Wp | 5 | 38.3 |
| | 9 | Wp-Ro-Rm | 4 | 10.6 |
| | 10 | Wp | 3 | 12.7 |
| | 11 | Wp | 4 | 44 |
| | 12 | N. Spr. | 4 | 7.8 |
| | 13 | Wp | 4 | 40.6 |
| | 14 | Aspen | 4 | 6.9 |
| | 15 | Wp-He | 4 | 29.6 |
| | 16 | Brush | 2 | 52.9 |
| | 17 | Brush | 2 | 1.4 |
| | | | Total | 392.8 |

Table A-1 (continued)

| | Stand # | Cover type | Size class | Acres |
|---------------|---------|-------------------|--------------|--------------|
| Compartment 5 | 1 | Wp | 5 | 30.1 |
| | 2 | Wp-Ro-Rm | 4 | 21.7 |
| | 3 | Sm-Be-Yb | 4 | 10 |
| | 4 | He | 4 | 5.2 |
| | 5 | Ro | 4 | 59.3 |
| | 6 | He | 4 | 13.5 |
| | 7 | Wp | 4 | 6.8 |
| | 8 | Wp-He | 4 | 10.5 |
| | 9 | Wp-Ro-Rm | 4 | 19 |
| | 10 | Wp | 5 | 17.6 |
| | 11 | Sm-Be-Yb | 3 | 5.6 |
| | 12 | Brush | 1 | 25 |
| | 13 | Other | 0 | 3.2 |
| | | | Total | 227.5 |
| Compartment 6 | 1 | Wp | 4 | 39 |
| | 2 | Wp | 4 | 11 |
| | 3 | Wp-Ro-Rm | 4 | 15 |
| | 4 | Wp | 4 | 29 |
| | 5 | Aspen | 2 | 29.5 |
| | 6 | Brush | 2 | 36.5 |
| | 7 | Aspen | 3 | 20.5 |
| | 8 | Wp-Ro-Rm | 4 | 19.5 |
| | 9 | Wp-He | 4 | 11 |
| | 10 | Grass / Old field | 6 | 6.5 |
| | 11 | Wp-Ro-Rm | 5 | 10.5 |
| | 12 | Wp | 4 | 9 |
| | 13 | Wp-Ro-Rm | 4 | 11.5 |
| | 14 | Ba-E-Rm | 3 | 11 |
| | | | Total | 259.5 |
| Compartment 7 | 1 | Wp | 5 | 4.5 |
| | 2 | Ro | 4 | 27.5 |
| | 3 | Wp | 3 | 6 |
| | 4 | Wp | 5 | 21.5 |
| | 5 | Grass / Old field | 0 | 33.5 |
| | 6 | Ro | 4 | 20 |
| | 7 | Wp-Ro-Rm | 4 | 8.5 |
| | 8 | Grass / Old field | 0 | 6 |
| | 9 | Grass / Old field | 0 | 6.5 |
| | 10 | Grass / Old field | 0 | 5.5 |
| | 11 | Wp-Ro-Rm | 4 | 60.5 |
| | 12 | Grass / Old field | 0 | 1.5 |
| | | | Total | 201.5 |

Table A-1 (continued)

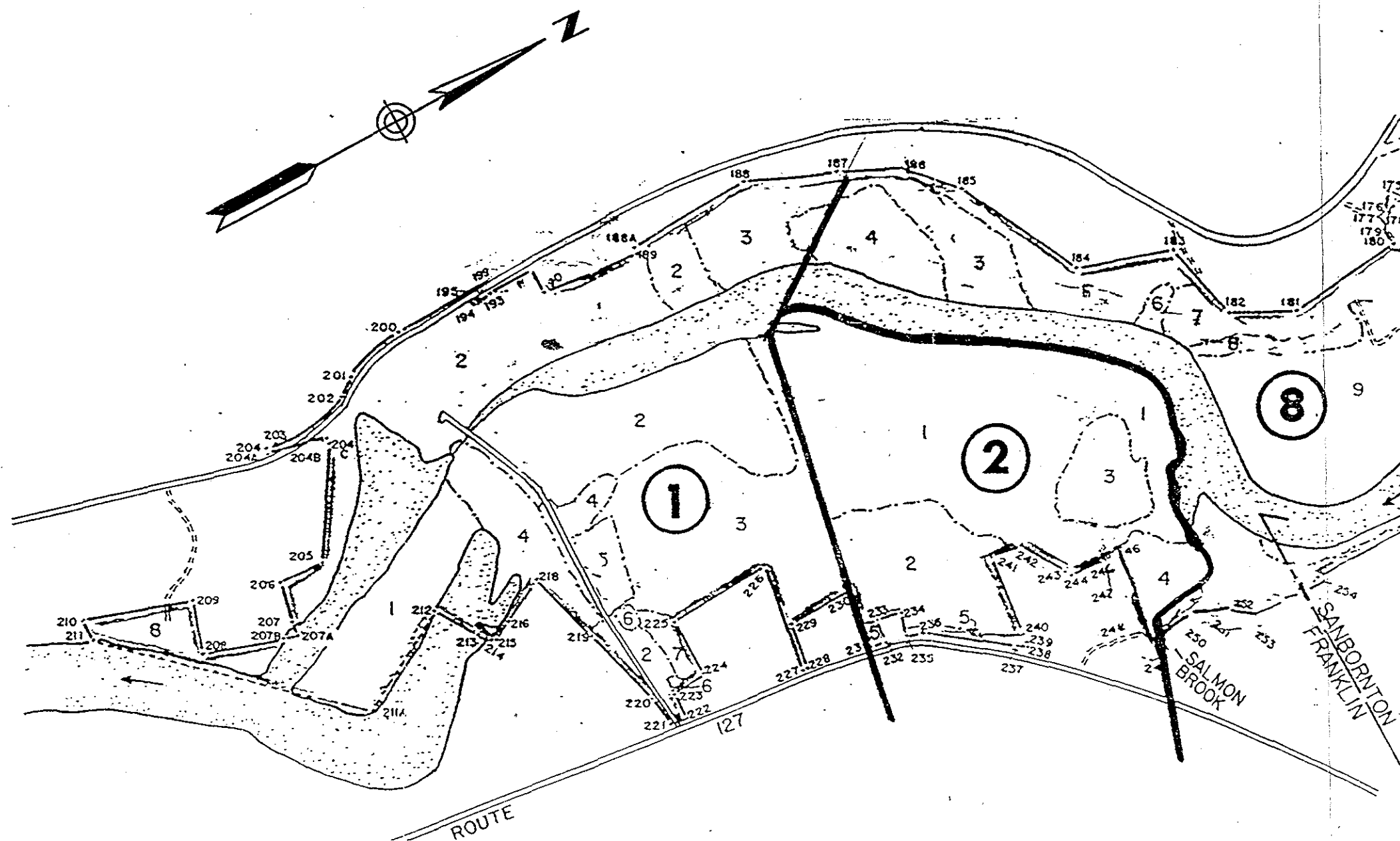
| | Stand # | Cover type | Size class | Acres |
|-----------------------|---------|-------------------|--------------|--------------|
| <i>Compartment 8</i> | 1 | Wp-Ro-Rm | 4 | 21.2 |
| | 2 | Wp | 3 | 7.1 |
| | 3 | Wp | 5 | 3.8 |
| | 4 | Wp-Ro-Rm | 4 | 34.8 |
| | 5 | Wo-Ro-Bo | 3 | 15.4 |
| | 6 | Aspen | 4 | 21.3 |
| | 7 | Wp | 4 | 6.5 |
| | 8 | Rm | 3 | 9.8 |
| | 9 | Brush | 2 | 81.2 |
| | 10 | Grass / Old field | 0 | 19.9 |
| | | | Total | 221 |
| <i>Compartment 9</i> | 1 | Wp | 5 | 37.5 |
| | 2 | Wp | 3 | 8 |
| | 3 | Grass / Old field | 0 | 4.5 |
| | 4 | Brush | 2 | 18 |
| | 5 | He | 4 | 32 |
| | 6 | Wp-Ro-Rm | 4 | 7.5 |
| | 7 | Wp-Ro-Rm | 4 | 17.5 |
| | 8 | Wp | 5 | 99.5 |
| | 9 | Wp | 4 | 47 |
| | 10 | Grass / Old field | 0 | 60.5 |
| | 11 | Grass / Old field | 0 | 19.5 |
| | 12 | Rm | 3 | 8.5 |
| | 13 | Ro | 4 | 6.5 |
| | 14 | Wp | 5 | 15.5 |
| | 15 | Wp-Ro-Rm | 4 | 17.5 |
| | 16 | R.O.W | 0 | 7.5 |
| | 17 | Wp | 4 | 2.5 |
| | | | Total | 409.5 |
| <i>Compartment 10</i> | 1 | Wp | 5 | 16.5 |
| | 2 | Grass / Old field | 0 | 193.5 |
| | 3 | Wp | 4 | 21.5 |
| | 4 | Wp-Ro-Rm | 4 | 23 |
| | 5 | He | 4 | 7 |
| | 6 | Wp-Ro-Rm | 4 | 17 |
| | 7 | Wp | 4 | 21.5 |
| | 8 | Wp | 5 | 15 |
| | 9 | Sm-Be-Yb | 4 | 8 |
| | 10 | Grass / Old field | 0 | 10 |
| | 11 | R.O.W | 1 | 12 |
| | | | Total | 345 |

Table A-1 (continued)

| | Stand # | Cover type | Size class | Acres |
|-----------------------|---------|-------------------|--------------|--------------|
| <i>Compartment 11</i> | 1 | Wp-Ro-Rm | 4 | 9.2 |
| | 2 | Wp | 3 | 5.9 |
| | 3 | Wp-Ro-Rm | 3 | 8.8 |
| | 4 | Wp | 4 | 9.6 |
| | 5 | Wp-Ro-Rm | 4 | 29.4 |
| | 6 | Aspen | 4 | 3.6 |
| | 7 | Wp | 5 | 12.4 |
| | 8 | Wp | 4 | 11 |
| | 9 | He | 4 | 10.8 |
| | 10 | Wp | 3 | 6.3 |
| | 11 | Wp-Ro-Rm | 4 | 18.1 |
| | 12 | Ro | 4 | 24.9 |
| | 13 | He | 4 | 4 |
| | 14 | Brush | 4 | 8.6 |
| | 15 | Grass / Old field | 0 | 2.7 |
| | 16 | Grass / Old field | 0 | 3.5 |
| | 17 | Grass / Old field | 0 | 5.6 |
| | 18 | Grass / Old field | 0 | 49.8 |
| | | | Total | 224.2 |
| <i>Compartment 12</i> | 1 | Sm-Bass | 4 | 5.6 |
| | 2 | Sm-Be-Yb | 4 | 15.3 |
| | 3 | Wp-Ro-Rm | 4 | 53.4 |
| | 4 | Ro | 4 | 32.7 |
| | 5 | Sm | 4 | 5.8 |
| | 6 | Ro | 4 | 3.4 |
| | 7 | Wp-Ro-Rm | 5 | 23.9 |
| | 8 | Wp | 4 | 13.7 |
| | 9 | Sm | 4 | 10.1 |
| | 10 | He | 4 | 2.7 |
| | 11 | Wp-Ro-Rm | 4 | 6.3 |
| | 12 | Aspen | 4 | 12.5 |
| | 13 | Grass / Old field | 0 | 3.4 |
| | 14 | Grass / Old field | 0 | 8.8 |
| | 15 | Brush | 1 | 8 |
| | 16 | Ro | 4 | 6.5 |
| | | | Total | 212.1 |

Table A-1 (continued)

| | |
|---------|---------------|
| Or | Red oak |
| WP | White pine |
| Rm | Red maple |
| He | Hemlock |
| N spr. | Norway Spruce |
| Aspen | Aspen |
| Sm | Silver maple |
| Be | Beech |
| Yb | Yellow birch |
| Ba/Bass | Basswood |
| E | American elm |
| Bo | Black Oak |
| Gb | Gray birch |
| Rp | Red pine |



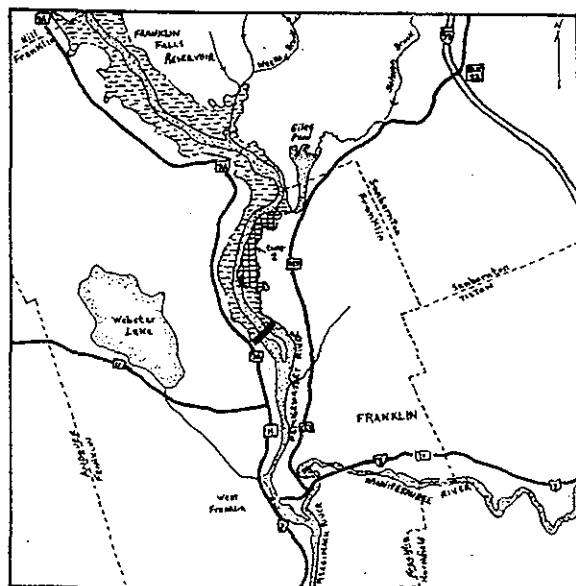
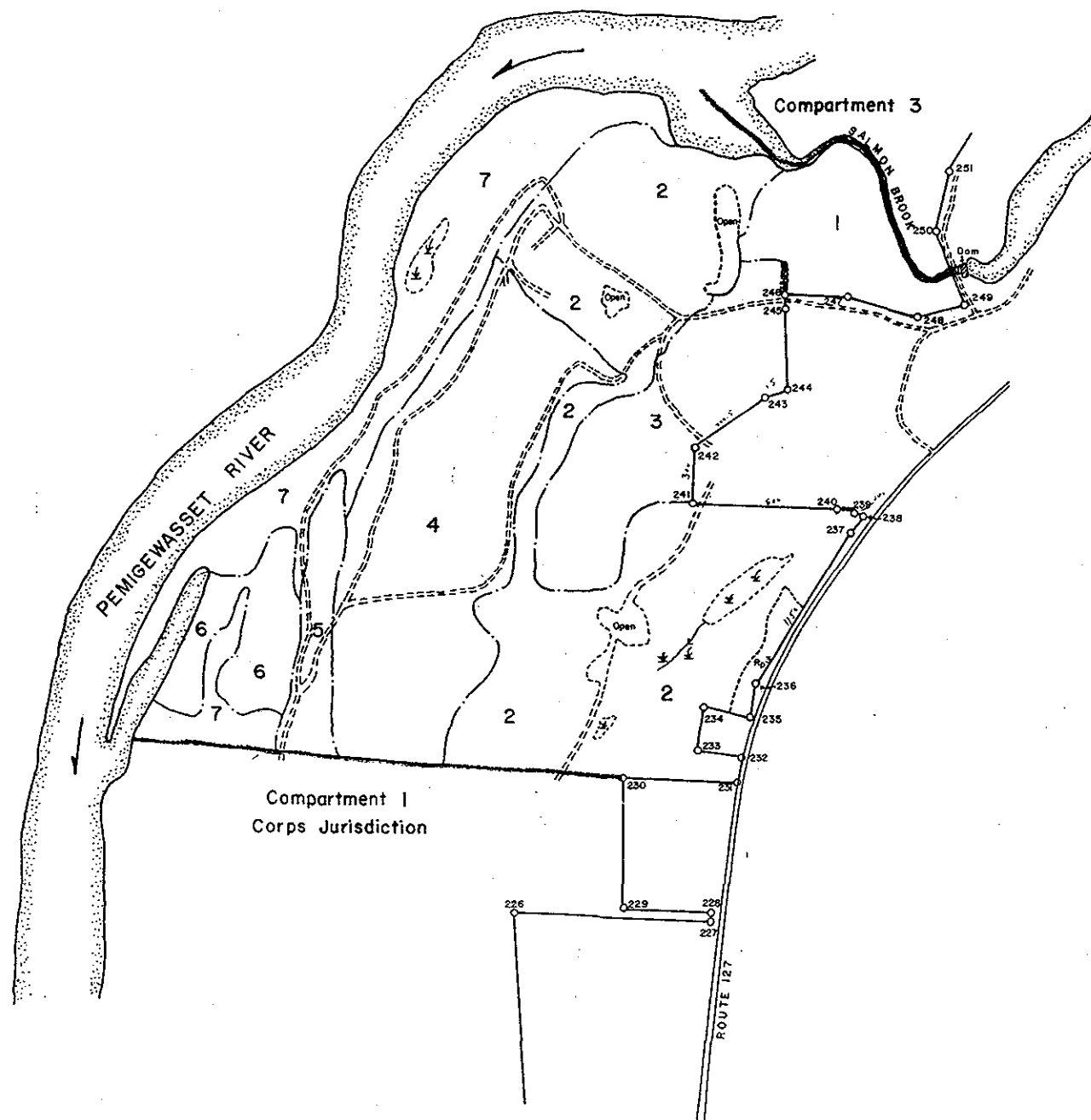
STAND TYPE MAP
 U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS
 FLOOD CONTROL AREA**
 FRANKLIN, NH
 COMPARTMENT 1
 Not to scale

Figure A-1

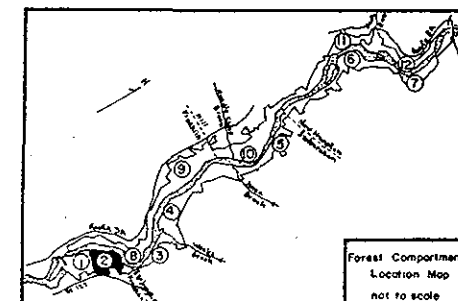
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Magnetic Bearings Compartment 2

| <u>MONUMENT #</u> | <u>BEARING</u> | <u>DISTANCE</u> |
|-------------------|----------------|-----------------|
| FF230 to FF231 | S 89 30 13 E | 561.5' |
| FF231 to FF232 | N 07 01 57 E | 143.4' |
| FF232 to FF233 | N 87 47 33 W | 226.4' |
| FF233 to FF234 | N 04 56 57 S | 222.0' |
| FF234 to FF235 | S 82 26 03 S | 236.9' |
| FF235 to FF236 | N 08 28 22 E | 166.7' |
| FF236 to FF237 | S 29 02 22 E | 91.8' |
| FF237 to FF238 | N 34 04 37 E | 87.0' |
| FF238 to FF239 | N 32 06 03 S | 34.7' |
| FF239 to FF240 | S 87 51 01 W | 92.6' |
| FF240 to FF241 | S 88 50 16 W | 747.1' |
| FF241 to FF242 | N 00 08 26 E | 281.6' |
| FF242 to FF243 | N 52 09 51 E | 469.7' |
| FF243 to FF244 | N 70 37 10 E | 84.9' |
| FF244 to FF245 | N 04 43 W | 418.2' |
| FF245 to FF246 | N 01 42 30 S | 37.5' |
| FF246 to FF247 | S 89 45 07 E | 303.4' |
| FF247 to FF248 | S 79 47 07 E | 70.7' |
| FF248 to FF249 | N 75 08 53 W | 252.2' |
| FF249 to FF250 | N 25 42 07 E | 389.3' |



VICINITY MAP



Forest Compartment
Location Map
not to scale

STAND TYPE MAP

U.S. ARMY CORPS OF ENGINEERS

FRANKLIN FALLS
FLOOD CONTROL AREA

LEASED BY

DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT

FRANKLIN,NH

COMPARTMENT 2

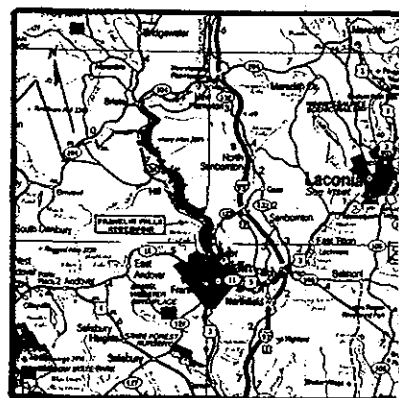
2/ 1 /90

CRUISED BY ELLIOT, STAATS

DRAWN BY: MacGREGOR

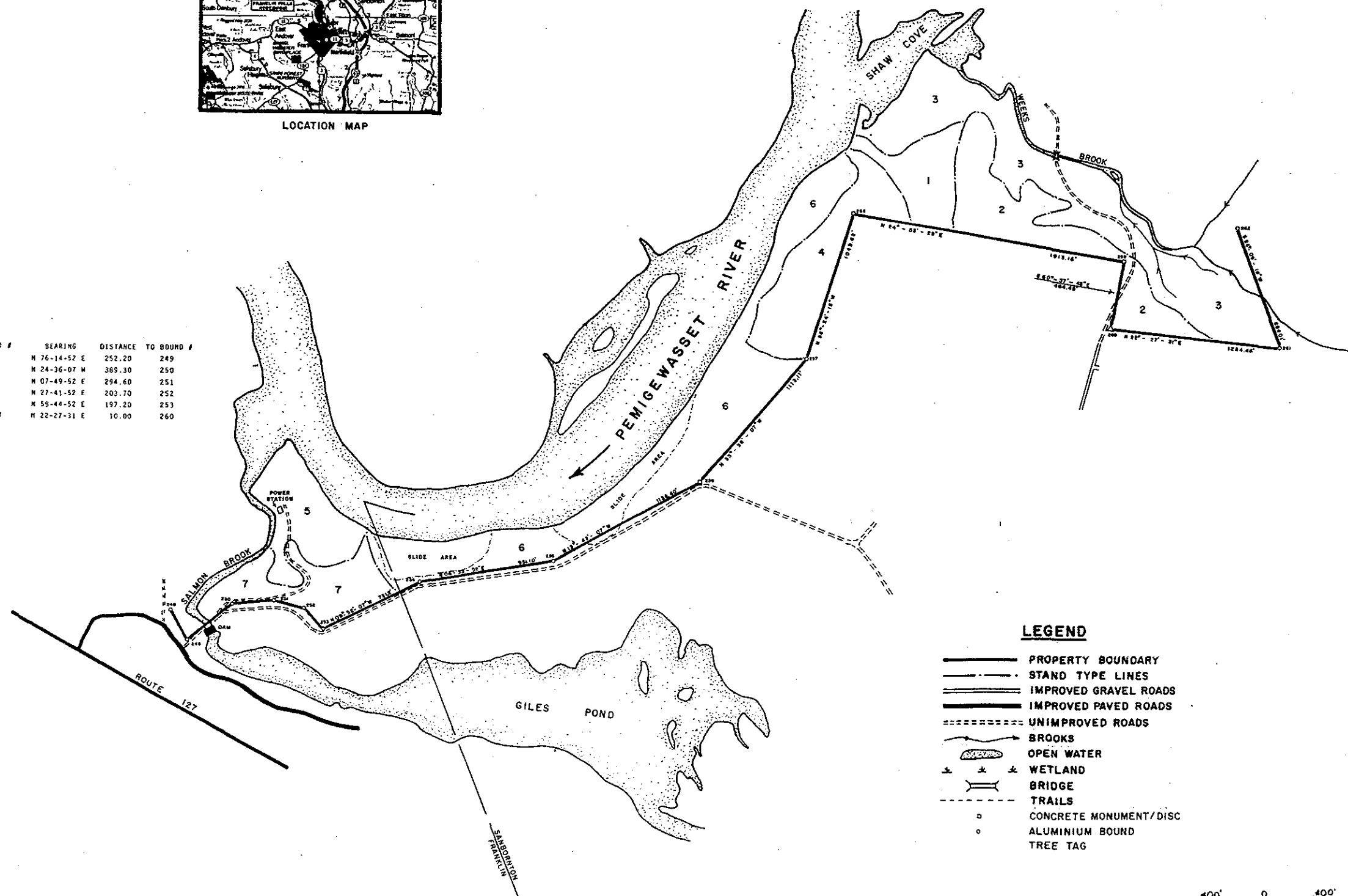


STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
DIVISION OF FORESTS AND LANDS



LOCATION MAP

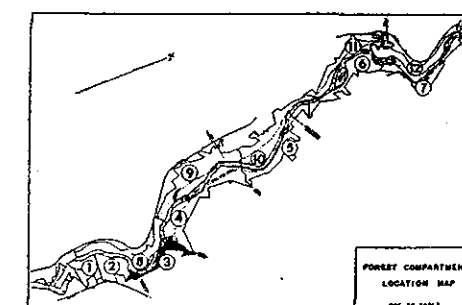
| BOUND # | BEARING | DISTANCE | TO BOUND # |
|---------|--------------|----------|------------|
| 248 | N 76-14-52 E | 252.20 | 249 |
| 249 | N 24-36-07 W | 389.30 | 250 |
| 250 | N 07-49-52 E | 294.60 | 251 |
| 251 | N 27-41-52 E | 203.70 | 252 |
| 252 | N 58-44-52 E | 197.20 | 253 |
| 260W | N 22-27-31 E | 10.00 | 260 |



LEGEND

- PROPERTY BOUNDARY
- - - STAND TYPE LINES
- == IMPROVED GRAVEL ROADS
- == IMPROVED PAVED ROADS
- - - UNIMPROVED ROADS
- ~ BROOKS
- OPEN WATER
- ⊛ WETLAND
- ⌒ BRIDGE
- - - TRAILS
- CONCRETE MONUMENT/DISC
- ALUMINIUM BOUND
- TREE TAG

400' 0 400' 800'
GRAPHIC SCALE IN FEET

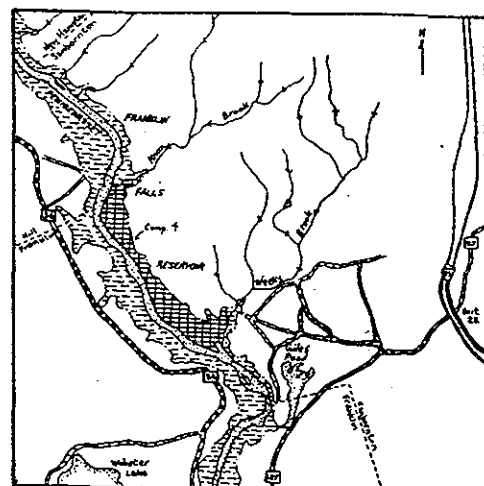


STAND TYPE MAP

U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS FLOOD
CONTROL RESERVOIR**
LEASED BY
DEPT. OF RESOURCES and ECONOMIC DEVELOPMENT
FRANKLIN, SANBORNTON, HILL,
NEW HAMPTON and BRISTOL, N.H.
COMPARTMENT #3

CRUISED BY P.L. STAFFS, R.F. ELLIOTT, 1/88

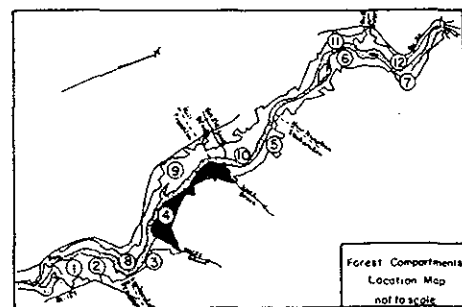
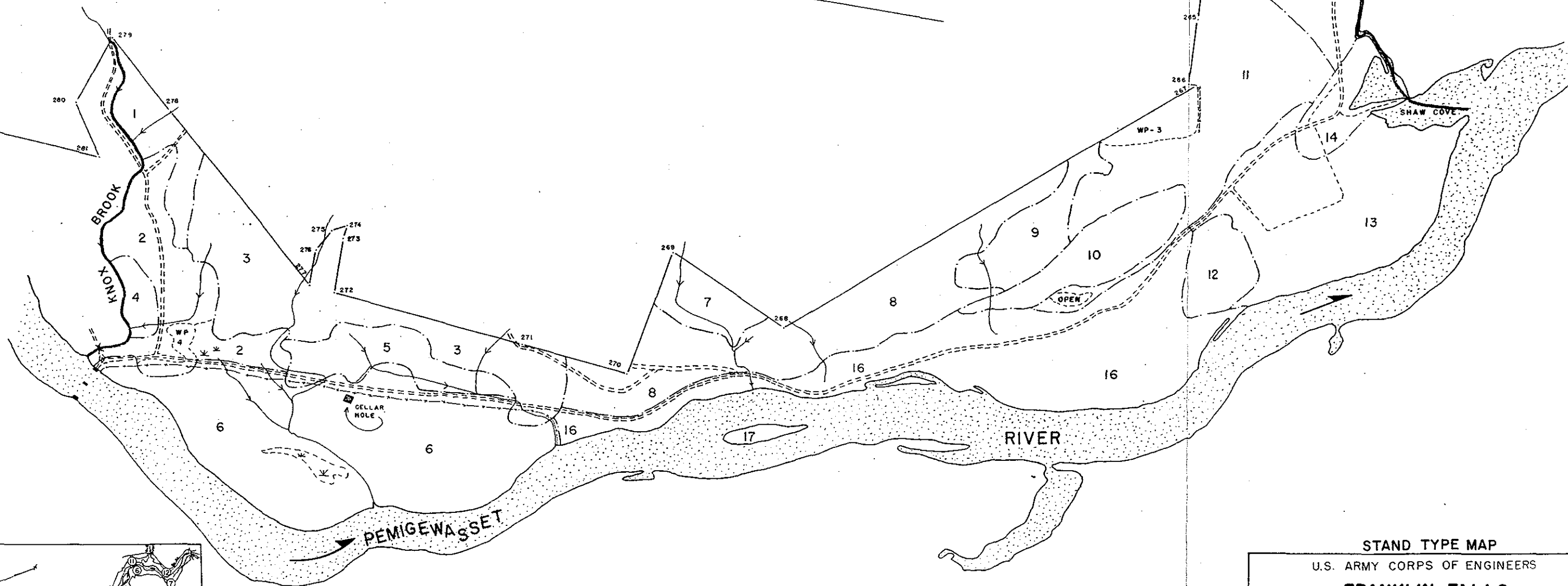
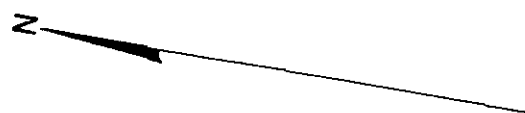
MAP DRAWN BY L. GARDNER 2/88



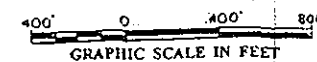
VICINITY MAP

Magnetic Bearings Compartment 4 Franklin Falls

| | | |
|----------------|--------------|----------|
| FF261 to FF262 | S 83 03 17 W | 884.0' |
| FF262 to FF263 | N 79 27 27 W | 502.6' |
| FF263 to FF264 | S 65 22 56 W | 182.0' |
| FF264 to FF265 | S 86 00 19 W | 789.4' |
| FF265 to FF266 | S 85 35 18 W | 501.0' |
| FF266 to FF267 | S 01 32 14 E | 67.4' |
| FF267 to FF268 | N 41 19 32 W | 3,764.8' |
| FF268 to FF269 | N 22 37 34 E | 1,077.8' |
| FF269 to FF270 | N 81 42 21 W | 1,004.2' |
| FF270 to FF271 | N 04 10 16 E | 905.6' |
| FF271 to FF272 | N 04 10 16 E | 1,472.4' |
| FF272 to FF273 | N 88 02 57 E | 418.6' |
| FF273 to FF274 | S 84 55 46 E | 113.4' |
| FF274 to FF275 | N 34 28 01 W | 140.4' |
| FF275 to FF276 | N 65 01 34 W | 166.4' |
| FF276 to FF277 | N 69 06 08 W | 290.5' |
| FF277 to FF278 | N 40 37 13 E | 1,731.4' |
| FF278 to FF279 | N 40 37 42 E | 705.5' |



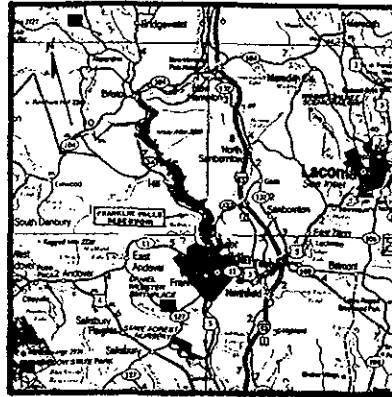
Forest Compartments
Location Map
not to scale



STAND TYPE MAP
U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS
FLOOD CONTROL AREA**
LEASED BY
DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT
SANBORNTON, NH
COMPARTMENT 4
1/12/90
CRUISED BY: STAATS, MCGREGOR, DESMARIS & ELLIOTT
DRAWN BY: MCGREGOR & STAATS

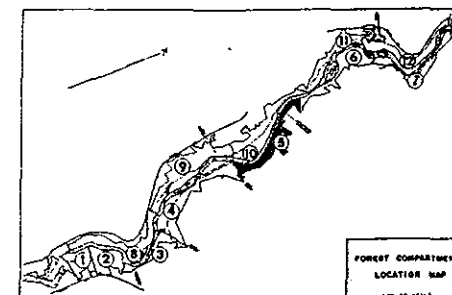
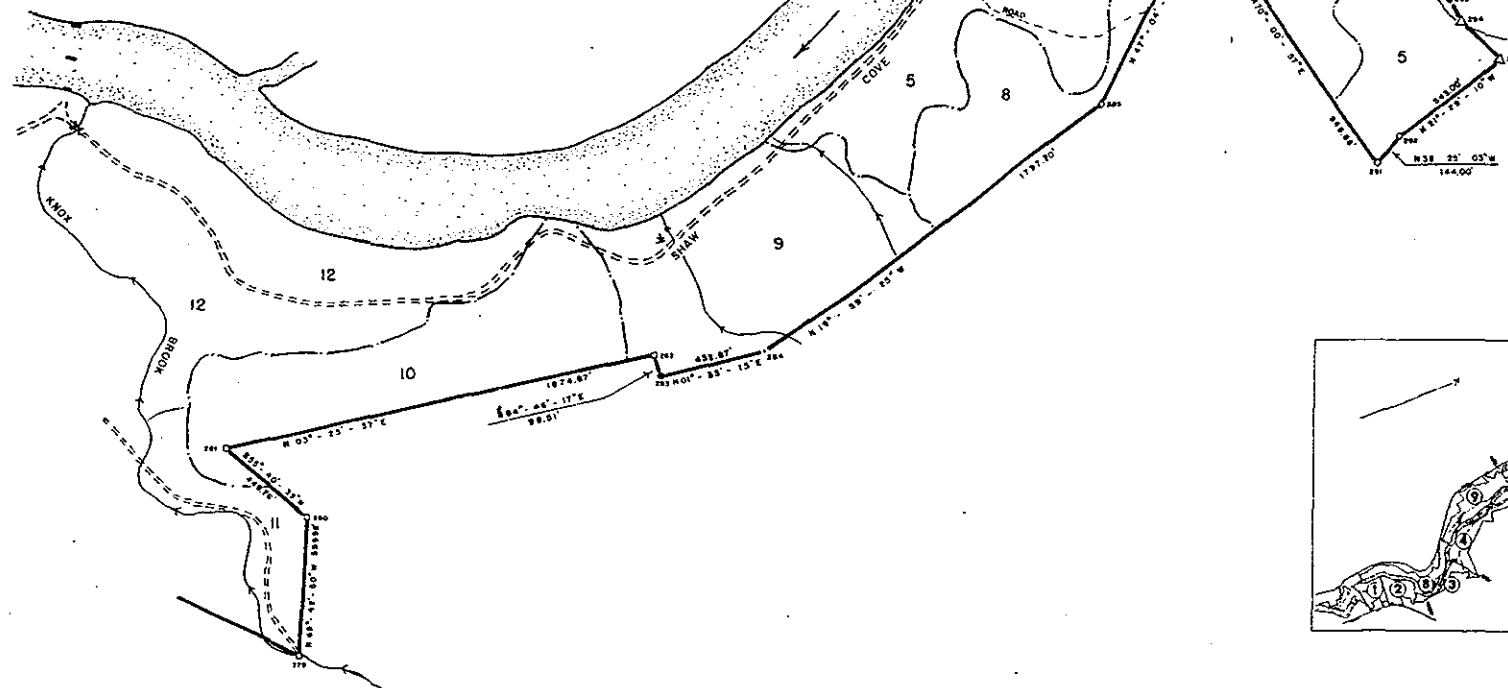
Figure A-4

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
DIVISION OF FORESTS AND LANDS



LOCATION MAP

| BOUND # | DESCRIPTION | BEARING | DISTANCE | TO BOUND # | DESCRIPTION |
|---------|------------------------|--------------|----------|------------|------------------------|
| 283W | ALUMINUM BOUND | N 22-59-06 W | 20.60 | 283 | IRON PIPE |
| 284W | ALUMINUM BOUND | N 19-59-25 W | 10.00 | 284 | OLD STUMP |
| 286 | CONCRETE MONUMENT/DISC | N 34-59-49 E | 128.90 | 287 | CONCRETE MONUMENT/DISC |
| 287 | CONCRETE MONUMENT/DISC | S 70-36-44 E | 245.14 | 288 | CONCRETE MONUMENT/DISC |
| 288 | CONCRETE MONUMENT/DISC | S 59-17-30 E | 368.74 | 289 | TREE TAG #157 |
| 289 | TREE TAG #157 | S 52-02-00 E | 272.90 | 290 | CONCRETE MONUMENT/DISC |
| 289W | ALUMINUM BOUND | N 07-35-07 E | 7.27 | 289 | TREE TAG #157 |
| 291 | TREE TAG #156 | S 59-15-46 W | 232.16 | 294 | TREE TAG #155 |
| 293W | ALUMINUM BOUND | S 15-55-30 E | 11.56 | 293 | TREE TAG #156 |
| 294 | TREE TAG #155 | S 79-17-57 W | 106.99 | 295 | 1/4" REBAR IN STUMP |
| 294W | ALUMINUM BOUND | N 59-15-46 E | 10.00 | 294 | TREE TAG #155 |
| 295 | 1/4" REBAR IN STUMP | S 74-55-29 W | 240.32 | 296 | CONCRETE MONUMENT/DISC |
| 295W | ALUMINUM BOUND | N 79-17-56 E | 10.00 | 295 | 1/4" REBAR IN STUMP |
| 296 | CONCRETE MONUMENT/DISC | S 82-07-30 W | 237.93 | 297 | CONCRETE MONUMENT/DISC |
| 297 | CONCRETE MONUMENT/DISC | N 27-49-25 W | 206.95 | 298 | TREE TAG #154 |
| 298W | ALUMINUM BOUND | S 01-32-03 W | 6.74 | 298 | TREE TAG #152 |
| 299 | TREE TAG #153 | S 62-48-37 W | 308.31 | 300 | TREE TAG #152 |
| 299W | ALUMINUM BOUND | S 78-35-48 E | 10.00 | 299 | TREE TAG #153 |
| 300 | TREE TAG #152 | S 46-34-29 W | 235.97 | 301 | TREE TAG #151 |
| 300W | ALUMINUM BOUND | N 62-48-27 E | 10.00 | 300 | TREE TAG #152 |
| 301 | TREE TAG #151 | S 64-06-29 W | 385.88 | 302 | ALUMINUM BOUND |
| 301W | ALUMINUM BOUND | N 46-34-29 E | 10.00 | 301 | TREE TAG #151 |
| 303 | TREE TAG #158 | N 75-35-01 E | 183.10 | 304 | TREE TAG #159 |
| 303W | ALUMINUM BOUND | N 75-35-01 E | 10.00 | 303 | TREE TAG #158 |
| 304 | TREE TAG #159 | N 51-56-04 E | 298.92 | 304 | ALUMINUM BOUND |
| 304W | ALUMINUM BOUND | N 51-56-04 E | 10.00 | 304 | TREE TAG #159 |
| 306 | CONCRETE MONUMENT/DISC | N 64-41-11 W | 258.87 | 307 | CONCRETE MONUMENT/DISC |
| 307 | CONCRETE MONUMENT/DISC | N 54-36-39 W | 101.86 | 308 | CONCRETE MONUMENT/DISC |
| 312W | ALUMINUM BOUND | S 41-46-55 W | 9.44 | 312 | IRON PIPE #162 |
| 313W | ALUMINUM BOUND | S 69-41-44 W | 9.66 | 313 | IRON PIPE #161 |
| 314W | ALUMINUM BOUND | N 33-57-07 W | 92.40 | 314 | ERODED AREA |



LEGEND

- PROPERTY BOUNDARY
- STAND TYPE LINES
- IMPROVED GRAVEL ROADS
- IMPROVED PAVED ROADS
- UNIMPROVED ROADS
- BROOKS
- OPEN WATER
- WETLAND
- BRIDGE
- TRAILS
- CONCRETE MONUMENT/DISC
- △ ALUMINUM BOUND
- △ TREE TAG
- IRON PIPE

STAND TYPE MAP

U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS FLOOD
CONTROL RESERVOIR**

LEASED BY
DEPT. OF RESOURCES AND ECONOMIC DEVELOPMENT

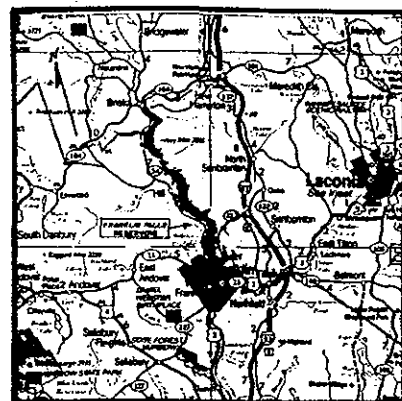
FRANKLIN, SANBORNTON, HILL,
NEW HAMPTON and BRISTOL, N.H.
COMPARTMENT #5

CRUISED BY F.L. STARRS, I. SEABOYER, L. GARDNER 11/87

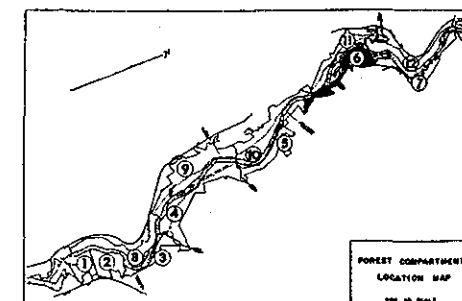
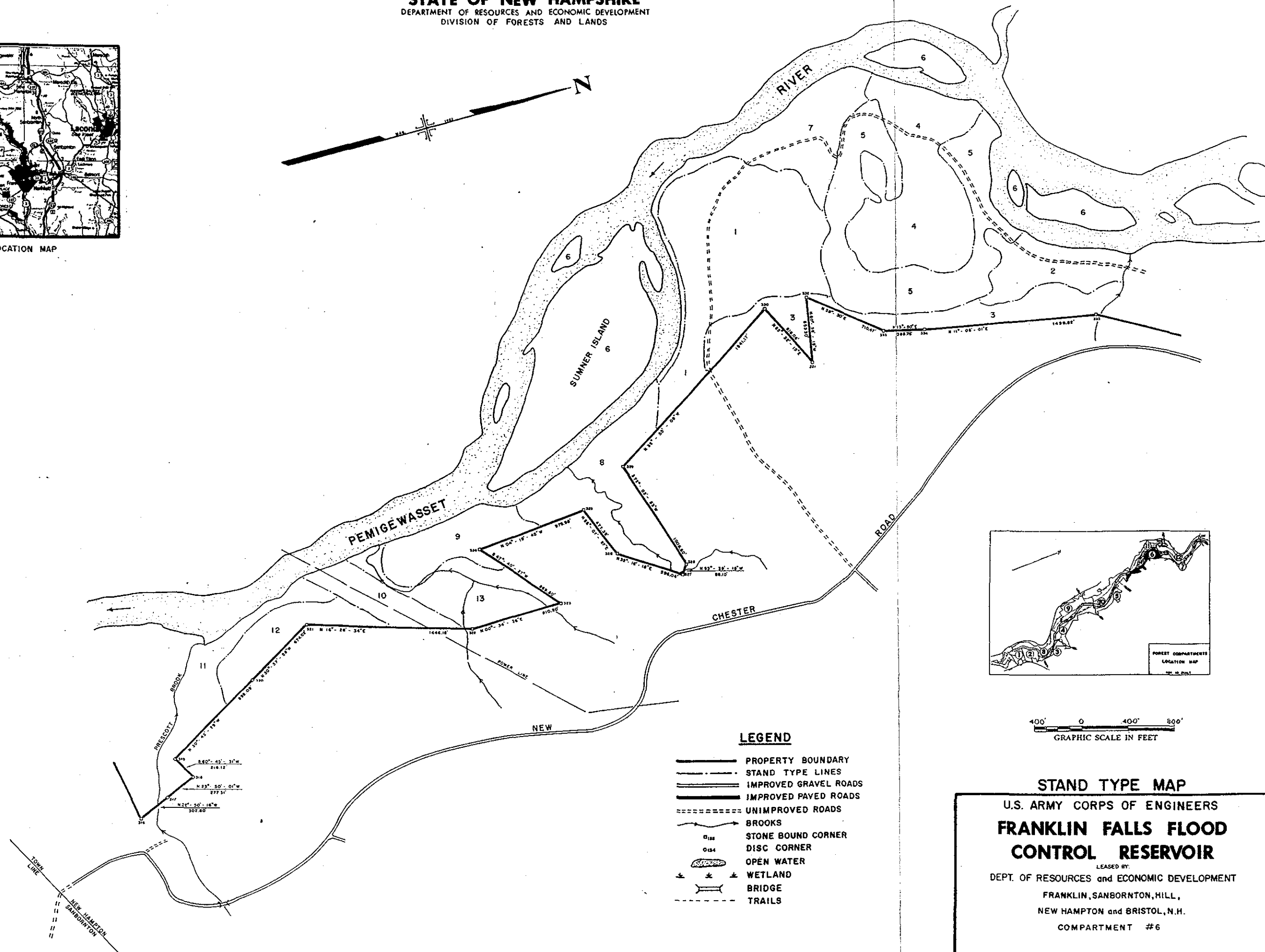
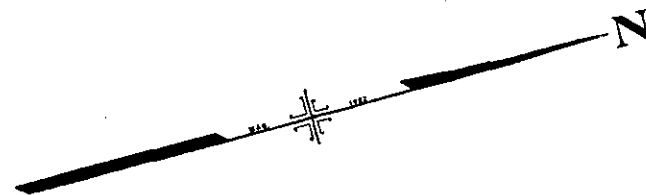
MAP DRAWN BY L. GARDNER 1/88

Figure A-5

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
DIVISION OF FORESTS AND LANDS



LOCATION MAP



400' 0 400' 800'
GRAPHIC SCALE IN FEET

LEGEND

- PROPERTY BOUNDARY
- - - STAND TYPE LINES
- IMPROVED GRAVEL ROADS
- IMPROVED PAVED ROADS
- - - UNIMPROVED ROADS
- BROOKS
- 155 STONE BOUND CORNER
- 154 DISC CORNER
- OPEN WATER
- WETLAND
- BRIDGE
- - - TRAILS

STAND TYPE MAP

U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS FLOOD
CONTROL RESERVOIR**

LEASED BY:
DEPT. OF RESOURCES AND ECONOMIC DEVELOPMENT
FRANKLIN, SANBORNTON, HILL,
NEW HAMPTON and BRISTOL, N.H.
COMPARTMENT #6

CREATED BY F. L. STARRS, R. F. ELLIOT 12/87

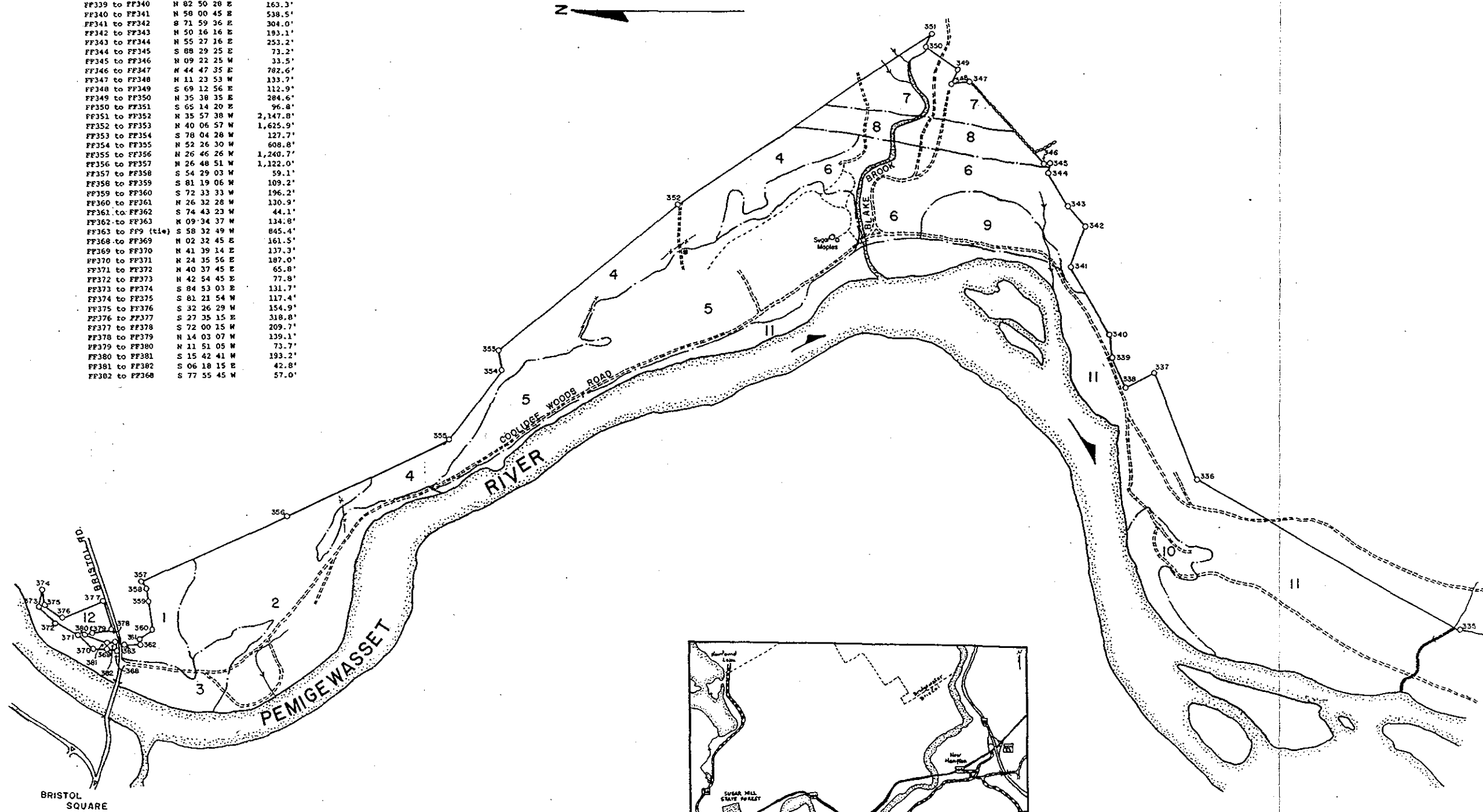
MAP DRAWN BY L. GARDNER 1/88

Figure A-6

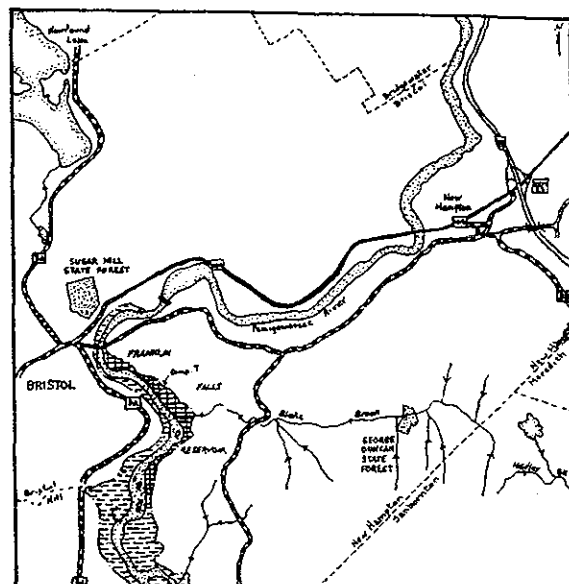
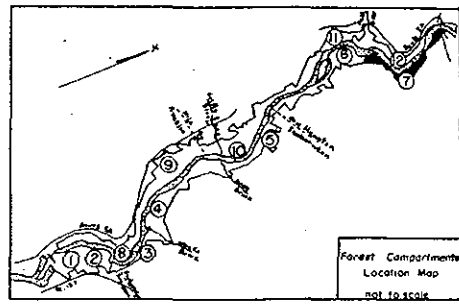
STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Magnetic Bearings Compartment 7 Franklin Falls

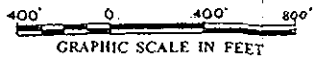
| | | |
|--------------------|--------------|----------|
| FF335 to FF336 | N 27 58 27 E | 2,130.0' |
| FF336 to FF337 | N 65 39 45 E | 807.3' |
| FF337 to FF338 | N 28 26 47 W | 226.2' |
| FF338 to FF339 | N 64 32 08 E | 229.3' |
| FF339 to FF340 | N 62 50 28 E | 163.3' |
| FF340 to FF341 | N 58 00 45 E | 538.5' |
| FF341 to FF342 | S 71 59 36 E | 304.0' |
| FF342 to FF343 | N 50 16 16 E | 193.1' |
| FF343 to FF344 | N 55 27 16 E | 253.2' |
| FF344 to FF345 | S 88 29 25 E | 73.2' |
| FF345 to FF346 | N 09 22 25 W | 33.5' |
| FF346 to FF347 | N 44 47 35 E | 782.6' |
| FF347 to FF348 | N 11 23 53 W | 133.7' |
| FF348 to FF349 | S 69 12 56 E | 112.9' |
| FF349 to FF350 | N 35 38 15 E | 284.6' |
| FF350 to FF351 | S 65 14 20 E | 96.8' |
| FF351 to FF352 | N 35 57 38 W | 2,147.8' |
| FF352 to FF353 | N 40 06 57 W | 1,625.9' |
| FF353 to FF354 | S 78 04 28 W | 127.7' |
| FF354 to FF355 | N 52 26 30 W | 608.8' |
| FF355 to FF356 | N 26 46 26 W | 1,240.7' |
| FF356 to FF357 | N 26 48 51 W | 1,122.0' |
| FF357 to FF358 | S 54 29 03 W | 59.1' |
| FF358 to FF359 | S 81 19 06 W | 109.2' |
| FF359 to FF360 | S 72 33 33 W | 196.2' |
| FF360 to FF361 | N 26 32 28 W | 130.9' |
| FF361 to FF362 | S 74 43 23 W | 44.1' |
| FF362 to FF363 | N 09 34 37 W | 134.8' |
| FF363 to FF3 (tie) | S 58 32 49 W | 845.4' |
| FF368 to FF369 | N 02 32 45 E | 161.5' |
| FF369 to FF370 | N 41 39 14 E | 137.3' |
| FF370 to FF371 | N 24 35 56 E | 187.0' |
| FF371 to FF372 | N 40 37 45 E | 65.8' |
| FF372 to FF373 | N 42 54 45 E | 77.8' |
| FF373 to FF374 | S 84 53 03 E | 131.7' |
| FF374 to FF375 | S 81 21 54 W | 117.4' |
| FF375 to FF376 | S 32 26 29 W | 154.9' |
| FF376 to FF377 | S 27 35 15 E | 318.8' |
| FF377 to FF378 | S 72 00 15 W | 209.7' |
| FF378 to FF379 | N 14 03 07 W | 139.1' |
| FF379 to FF380 | N 11 51 05 W | 73.7' |
| FF380 to FF381 | S 15 42 41 W | 193.2' |
| FF381 to FF382 | S 06 18 15 E | 42.8' |
| FF382 to FF368 | S 77 55 45 W | 57.0' |



BRISTOL SQUARE



VICINITY MAP



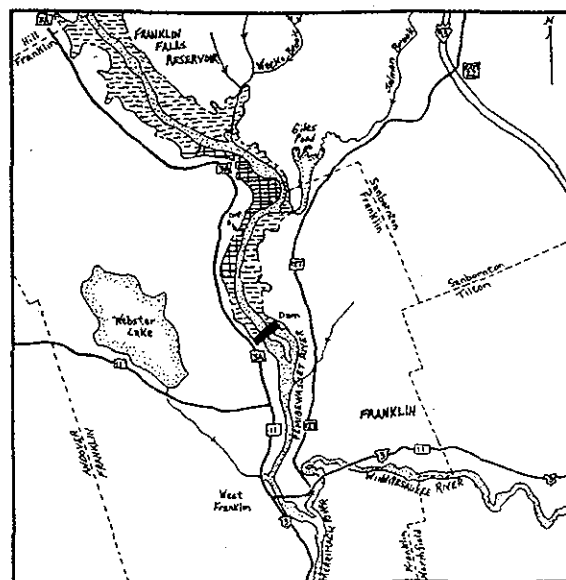
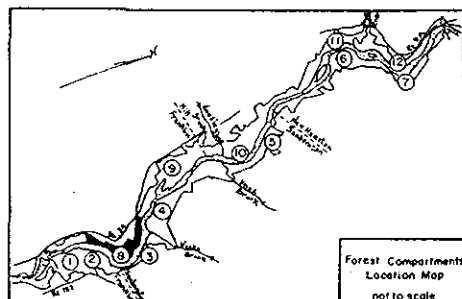
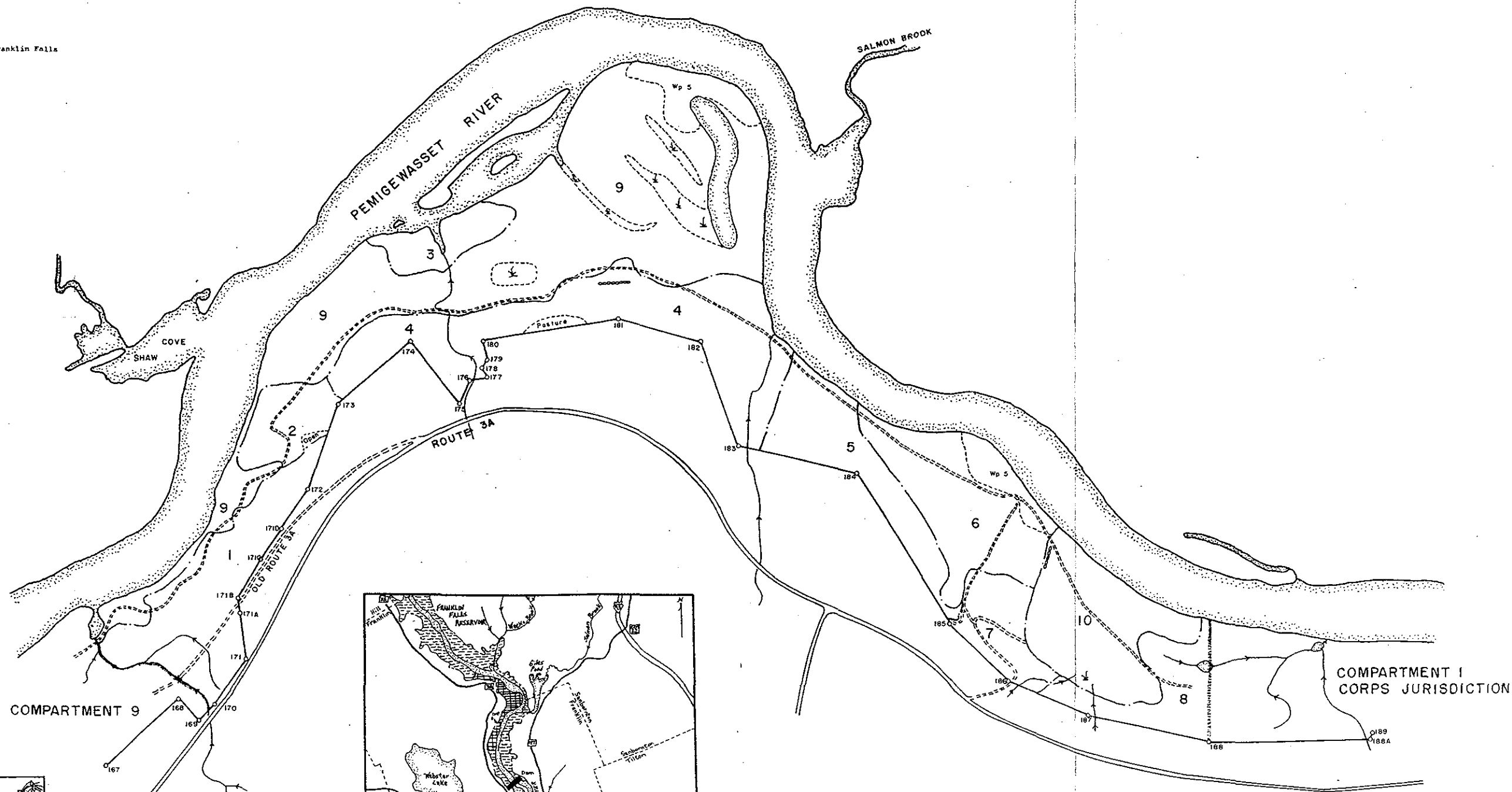
STAND TYPE MAP
U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS
FLOOD CONTROL AREA**
LEASED BY
DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT
NEW HAMPTON, NH
COMPARTMENT 7
1/30/90
CRUISED BY: ELLIOTT, SEABOYER, DEHART, DESMARIS & MacGREGOR
DRAWN BY: MacGREGOR

Figure A-7

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Magnetic Bearings Compartment 8 Franklin Falls

| | | |
|------------------|--------------|----------|
| FF170 to FF171 | S 55 55 26 E | 170.3' |
| FF171 to FF171A | N 79 25 02 E | 330.5' |
| FF171A to FF171B | N 76 45 02 E | 86.7' |
| FF171B to FF171C | S 61 52 28 E | 332.4' |
| FF171C to FF171D | S 57 49 21 E | 261.8' |
| FF171D to FF172 | S 54 00 42 E | 343.6' |
| FF172 to FF173 | S 72 01 42 E | 643.2' |
| FF173 to FF174 | S 44 31 05 E | 692.4' |
| FF174 to FF175 | S 48 34 53 W | 569.3' |
| FF175 to FF176 | S 58 15 13 E | 203.8' |
| FF176 to FF177 | S 04 31 13 E | 68.8' |
| FF177 to FF178 | N 71 06 51 E | 68.7' |
| FF178 to FF179 | S 75 44 09 E | 61.1' |
| FF179 to FF180 | N 84 25 30 E | 147.0' |
| FF180 to FF181 | S 12 57 33 E | 1,032.3' |
| FF181 to FF182 | S 19 30 20 W | 632.1' |
| FF182 to FF183 | S 68 25 54 W | 797.9' |
| FF183 to FF184 | S 11 14 07 W | 899.7' |
| FF184 to FF185 | S 57 24 00 W | 1,300.0' |
| FF185 to FF186 | S 38 38 05 W | 600.3' |
| FF186 to FF187 | S 21 22 05 W | 636.4' |
| FF187 to FF188 | S 16 02 00 W | 909.5' |



VICINITY MAP

400' 0 400' 800'
GRAPHIC SCALE IN FEET

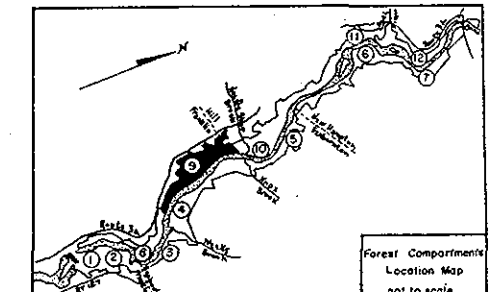
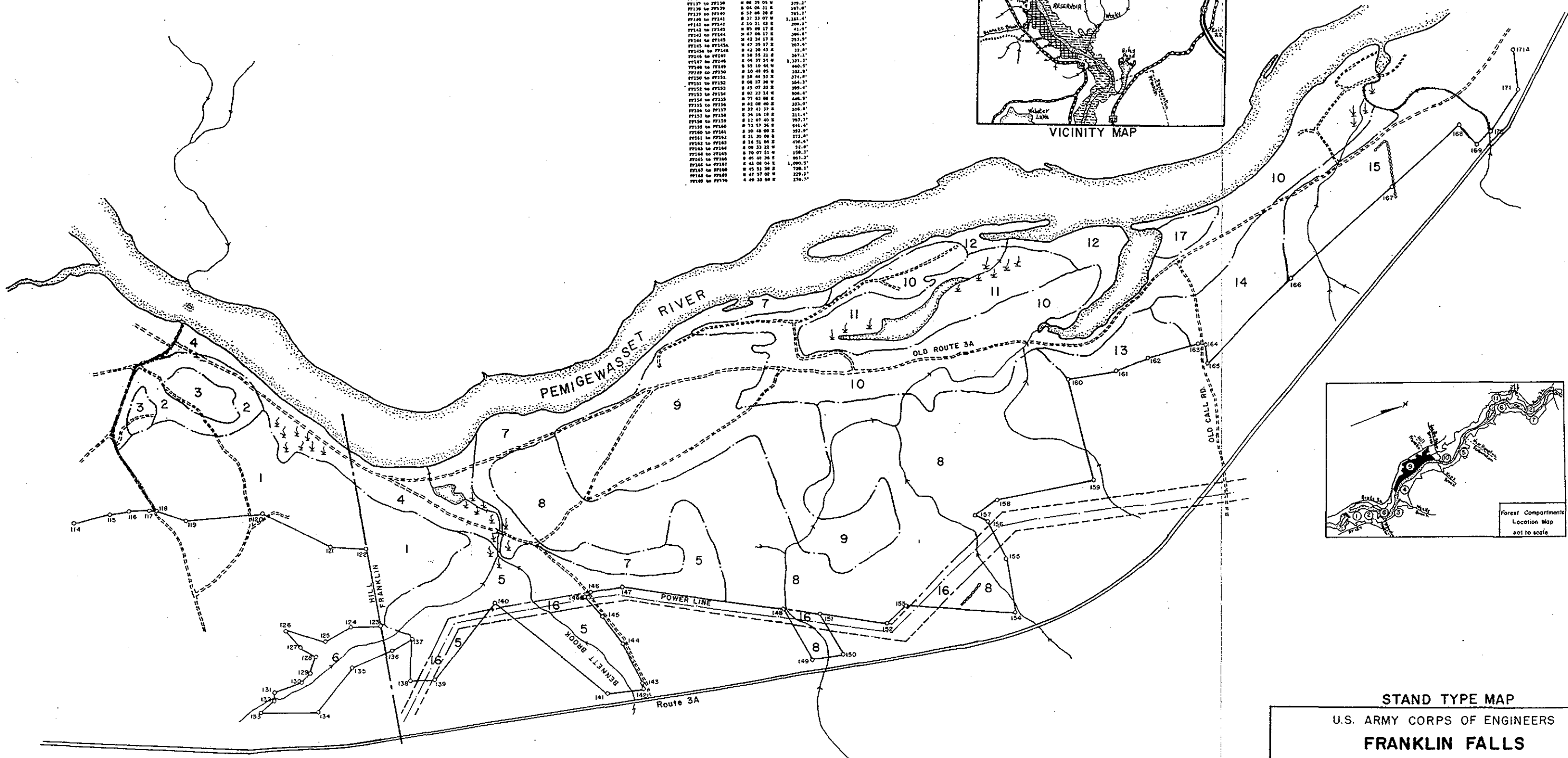
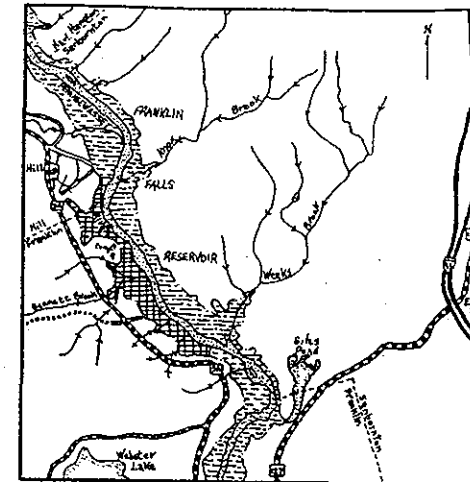
STAND TYPE MAP
U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS
FLOOD CONTROL AREA**
LEASED BY
DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT
FRANKLIN, NH
COMPARTMENT 8
3/15/90
DRAWN BY: MCGREGOR

Figure A-8

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Magnetic Declination Comparison 9 Franklin Falls

| | | |
|----------------|--------------|----------|
| FF107 to FF110 | 8 01 51 28 N | 43.2' |
| FF110 to FF113 | 8 12 00 44 N | 137.1' |
| FF113 to FF116 | 8 06 51 27 W | 197.4' |
| FF116 to FF119 | 8 34 40 03 W | 609.0' |
| FF119 to FF122 | 8 00 42 42 W | 295.2' |
| FF122 to FF125 | 8 38 54 04 W | 639.5' |
| FF125 to FF128 | 8 00 18 20 W | 222.7' |
| FF128 to FF131 | 8 29 51 30 W | 264.9' |
| FF131 to FF134 | 8 14 50 16 S | 333.4' |
| FF134 to FF137 | 8 16 36 14 W | 183.1' |
| FF137 to FF140 | 8 26 18 20 W | 418.5' |
| FF140 to FF143 | 8 30 46 34 W | 144.3' |
| FF143 to FF146 | 8 50 31 11 W | 86.4' |
| FF146 to FF149 | 8 31 04 40 W | 251.7' |
| FF149 to FF152 | 8 29 54 07 W | 74.5' |
| FF152 to FF155 | 8 39 25 23 W | 331.5' |
| FF155 to FF158 | 8 02 50 37 E | 844.4' |
| FF158 to FF161 | 8 51 06 23 E | 451.8' |
| FF161 to FF164 | 8 24 27 29 E | 217.4' |
| FF164 to FF167 | 8 55 09 29 E | 149.2' |
| FF167 to FF170 | 8 04 04 21 E | 197.0' |
| FF170 to FF173 | 8 52 08 28 E | 781.2' |
| FF173 to FF176 | 8 27 32 07 W | 1,141.4' |
| FF176 to FF179 | 8 10 51 43 W | 200.8' |
| FF179 to FF182 | 8 09 08 27 E | 41.9' |
| FF182 to FF185 | 8 07 06 37 E | 246.6' |
| FF185 to FF188 | 8 42 37 17 E | 251.9' |
| FF188 to FF191 | 8 47 29 17 E | 207.9' |
| FF191 to FF194 | 8 43 03 43 E | 31.8' |
| FF194 to FF197 | 8 10 55 21 E | 267.1' |
| FF197 to FF200 | 8 06 37 24 E | 1,221.3' |
| FF200 to FF203 | 8 53 10 44 W | 440.5' |
| FF203 to FF206 | 8 50 48 05 E | 232.9' |
| FF206 to FF209 | 8 50 44 17 E | 271.4' |
| FF209 to FF212 | 8 08 27 38 W | 164.3' |
| FF212 to FF215 | 8 45 07 43 E | 209.4' |
| FF215 to FF218 | 8 02 22 14 W | 906.4' |
| FF218 to FF221 | 8 27 02 00 E | 448.9' |
| FF221 to FF224 | 8 42 08 00 E | 233.0' |
| FF224 to FF227 | 8 32 43 33 E | 108.8' |
| FF227 to FF230 | 8 26 16 18 E | 211.5' |
| FF230 to FF233 | 8 12 07 40 E | 793.7' |
| FF233 to FF236 | 8 23 57 36 E | 911.4' |
| FF236 to FF239 | 8 10 48 00 E | 292.9' |
| FF239 to FF242 | 8 21 30 00 E | 271.4' |
| FF242 to FF245 | 8 14 51 00 E | 436.4' |
| FF245 to FF248 | 8 09 33 22 W | 51.0' |
| FF248 to FF251 | 8 20 07 51 W | 158.7' |
| FF251 to FF254 | 8 46 46 36 E | 807.3' |
| FF254 to FF257 | 8 43 08 04 E | 1,090.5' |
| FF257 to FF260 | 8 45 33 50 E | 728.1' |
| FF260 to FF263 | 8 47 37 02 W | 229.1' |
| FF263 to FF266 | 8 49 33 58 E | 176.5' |



STAND TYPE MAP
U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS
FLOOD CONTROL AREA**
LEASED BY
DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT
HILL & FRANKLIN, NH
COMPARTMENT 9
3/14/90
CRUISED BY: Elliott, MacGregor, Desmarais & Seaboyer
DRAWN BY: MacGregor

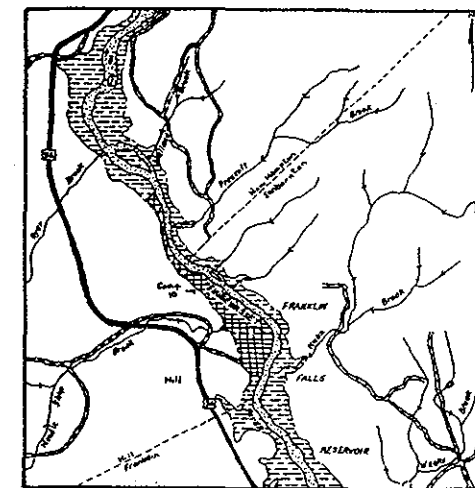
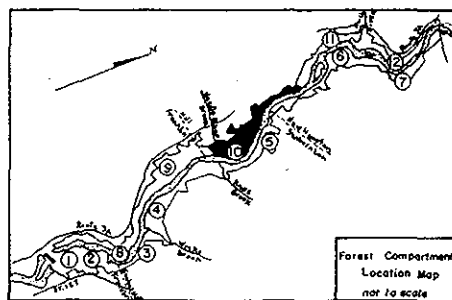
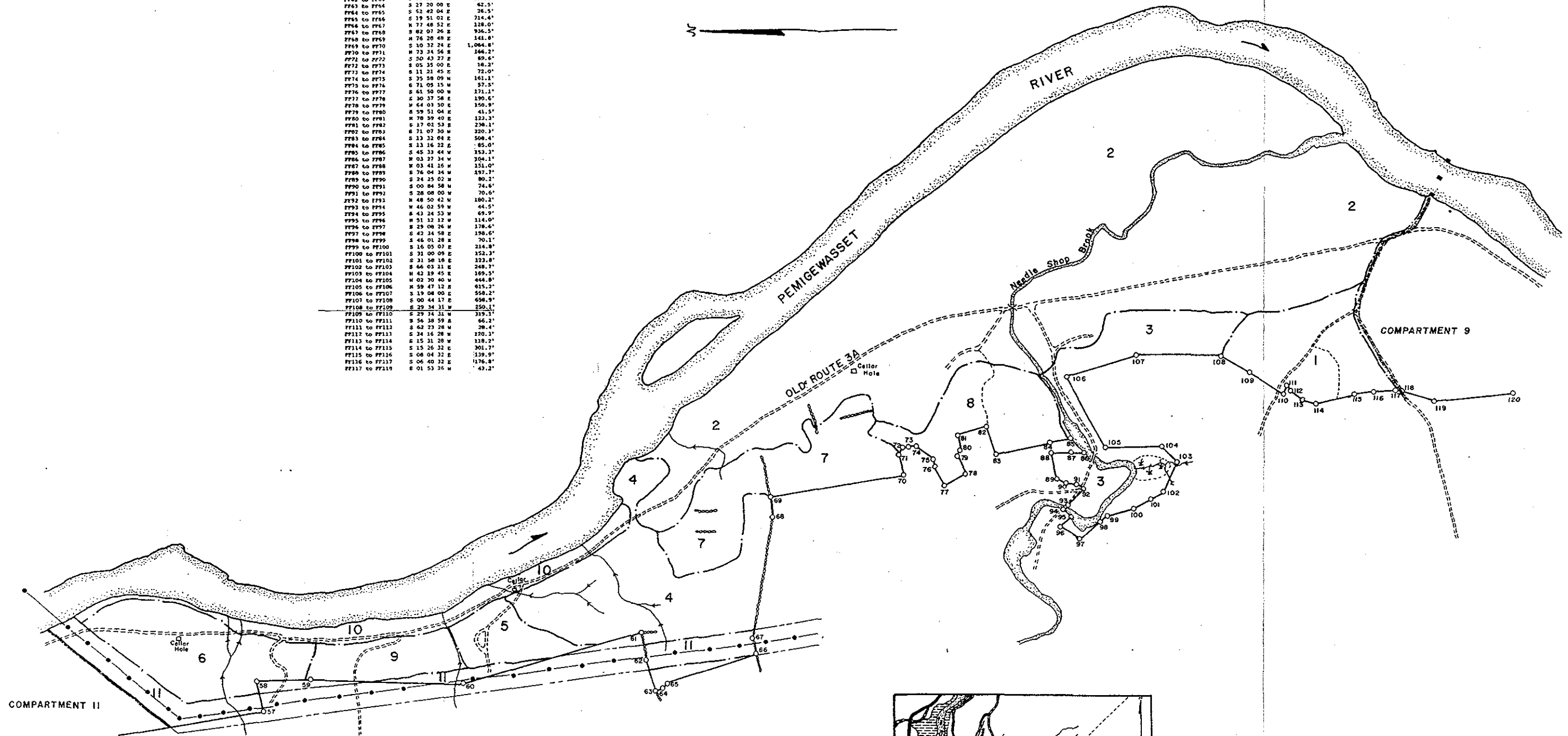


Figure A-9

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Magnetic Bearings Compartment 10 Franklin Falls

| | | |
|----------------|--------------|----------|
| FF54 to FF57 | S 10 52 36 E | 1,148.2' |
| FF57 to FF58 | N 75 30 34 E | 232.0' |
| FF58 to FF59 | S 02 51 53 E | 423.2' |
| FF59 to FF60 | S 00 00 53 E | 1,159.4' |
| FF60 to FF61 | S 17 57 37 E | 1,420.8' |
| FF61 to FF62 | S 01 24 25 W | 225.6' |
| FF62 to FF63 | S 66 23 31 W | 239.0' |
| FF63 to FF64 | S 27 20 08 E | 42.5' |
| FF64 to FF65 | S 52 42 04 E | 26.5' |
| FF65 to FF66 | S 19 51 02 E | 714.4' |
| FF66 to FF67 | N 77 48 52 E | 218.0' |
| FF67 to FF68 | S 02 07 26 E | 936.5' |
| FF68 to FF69 | N 76 20 48 E | 141.8' |
| FF69 to FF70 | S 10 32 24 E | 1,064.8' |
| FF70 to FF71 | N 73 24 56 E | 146.2' |
| FF71 to FF72 | S 50 43 27 E | 89.6' |
| FF72 to FF73 | S 05 35 00 E | 16.2' |
| FF73 to FF74 | S 11 21 45 E | 72.0' |
| FF74 to FF75 | S 35 58 09 W | 141.1' |
| FF75 to FF76 | S 71 05 15 W | 57.2' |
| FF76 to FF77 | S 61 50 00 W | 271.1' |
| FF77 to FF78 | S 30 37 58 E | 190.6' |
| FF78 to FF79 | N 64 03 50 E | 150.9' |
| FF79 to FF80 | S 59 51 04 E | 41.5' |
| FF80 to FF81 | N 70 59 40 E | 123.3' |
| FF81 to FF82 | S 17 01 53 E | 230.1' |
| FF82 to FF83 | S 71 07 30 W | 220.3' |
| FF83 to FF84 | S 13 32 04 E | 504.4' |
| FF84 to FF85 | S 13 16 22 E | 85.0' |
| FF85 to FF86 | S 45 33 44 W | 153.3' |
| FF86 to FF87 | N 03 27 34 W | 104.1' |
| FF87 to FF88 | N 03 41 26 W | 151.0' |
| FF88 to FF89 | S 76 04 34 W | 197.7' |
| FF89 to FF90 | S 24 25 02 W | 80.2' |
| FF90 to FF91 | S 00 04 58 W | 74.6' |
| FF91 to FF92 | S 28 00 00 W | 70.0' |
| FF92 to FF93 | N 48 50 42 W | 180.2' |
| FF93 to FF94 | N 46 02 59 W | 44.5' |
| FF94 to FF95 | S 43 24 53 W | 69.9' |
| FF95 to FF96 | N 51 12 17 W | 114.0' |
| FF96 to FF97 | S 29 00 26 W | 178.6' |
| FF97 to FF98 | S 42 34 58 E | 198.6' |
| FF98 to FF99 | S 46 01 28 E | 70.1' |
| FF99 to FF100 | S 16 05 07 E | 214.8' |
| FF100 to FF101 | S 31 00 09 E | 152.3' |
| FF101 to FF102 | S 31 58 16 E | 123.8' |
| FF102 to FF103 | S 66 03 11 E | 248.9' |
| FF103 to FF104 | N 42 19 45 E | 169.5' |
| FF104 to FF105 | N 02 30 40 W | 444.8' |
| FF105 to FF106 | N 59 47 12 E | 615.2' |
| FF106 to FF107 | S 19 08 00 E | 558.2' |
| FF107 to FF108 | S 00 44 17 E | 658.9' |
| FF108 to FF109 | S 29 34 31 W | 250.1' |
| FF109 to FF110 | S 29 34 31 W | 319.3' |
| FF110 to FF111 | S 56 30 59 W | 66.2' |
| FF111 to FF112 | S 62 23 28 W | 28.4' |
| FF112 to FF113 | S 34 16 28 W | 170.3' |
| FF113 to FF114 | S 15 31 20 W | 118.2' |
| FF114 to FF115 | S 15 26 32 E | 301.7' |
| FF115 to FF116 | S 08 04 32 E | 139.9' |
| FF116 to FF117 | S 06 40 32 E | 1176.8' |
| FF117 to FF118 | S 01 53 26 W | 43.2' |

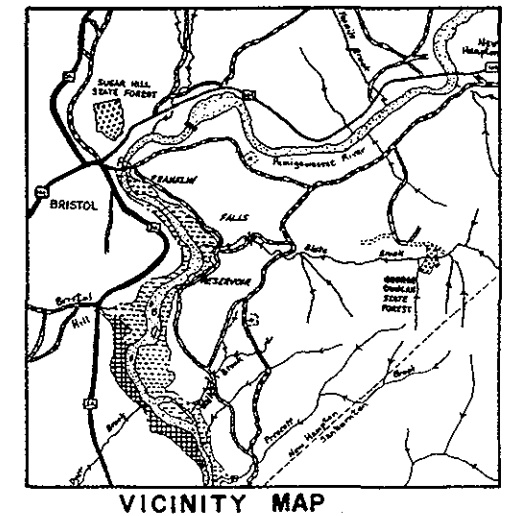
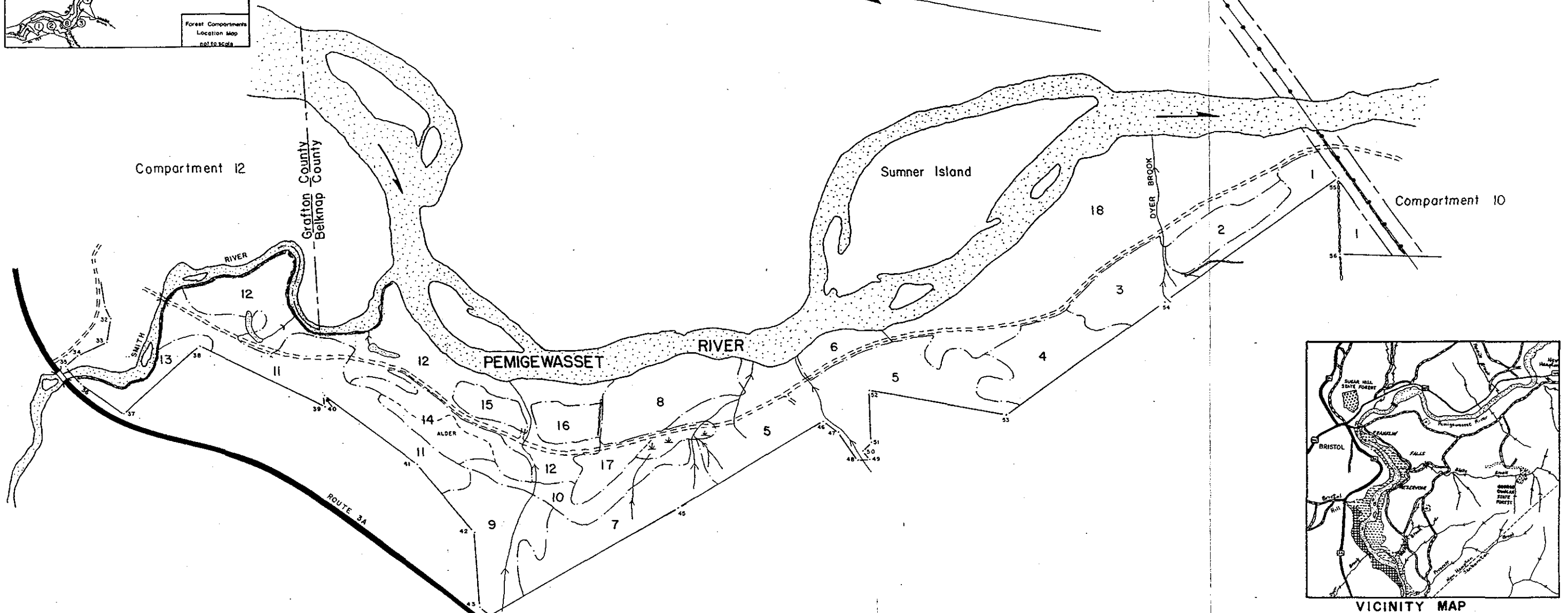
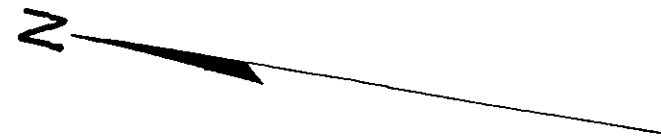
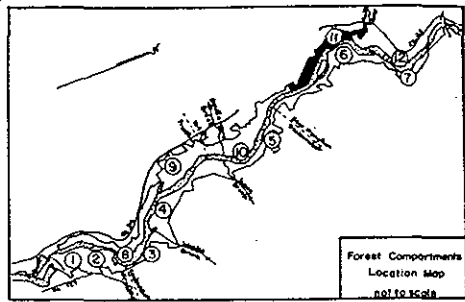


400' 0 400' 800'
GRAPHIC SCALE IN FEET

STAND TYPE MAP
U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS
FLOOD CONTROL AREA**
LEASED BY
DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT
HILL, NH
COMPARTMENT 10
2/9/90
CRUISED BY: STAATS, ELLIOTT
DRAWN BY: MCGREGOR

Figure A-10

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT



Magnetic Bearings Compartment 11 Franklin Falls

| | | |
|---------------|--------------|----------|
| FF36A to FF37 | S 23 22 11 W | 410.5' |
| FF37 to FF38 | S 52 24 30 E | 803.2' |
| FF38 to FF39 | S 14 09 30 W | 1,100.0' |
| FF39 to FF40 | N 74 52 19 E | 79.9' |
| FF40 to FF41 | S 25 18 15 W | 893.7' |
| FF41 to FF42 | S 37 25 43 W | 702.9' |
| FF42 to FF43 | S 74 05 19 W | 583.7' |
| FF43 to FF44 | S 25 15 46 W | 97.4' |
| FF44 to FF45 | S 40 59 18 E | 1,718.1' |
| FF45 to FF46 | S 41 09 48 E | 1,319.7' |
| FF46 to FF47 | S 24 57 49 W | 138.4' |
| FF47 to FF48 | S 41 55 12 W | 276.4' |
| FF48 to FF49 | S 11 18 10 E | 93.8' |
| FF49 to FF50 | S 35 19 43 E | 88.7' |
| FF50 to FF51 | S 56 02 38 E | 99.8' |
| FF51 to FF52 | N 76 10 09 E | 415.5' |
| FF52 to FF53 | S 00 55 34 E | 1,104.3' |
| FF53 to FF54 | S 46 23 31 E | 1,550.5' |
| FF54 to FF55 | S 46 22 46 E | 1,695.2' |
| FF55 to FF56 | S 74 56 47 W | 591.5' |
| FF56 to FF57 | S 10 52 36 E | 1,148.2' |

100' 0 400' 800'
GRAPHIC SCALE IN FEET

STAND TYPE MAP

U.S. ARMY CORPS OF ENGINEERS

FRANKLIN FALLS
FLOOD CONTROL AREA

LEASED BY

DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT
HILL, NH

COMPARTMENT 11

1/10/90

CRUISED BY: STAATS, ELLIOTT

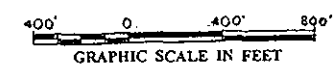
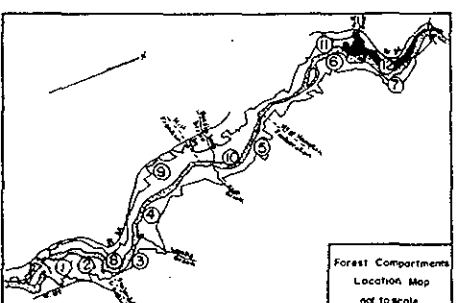
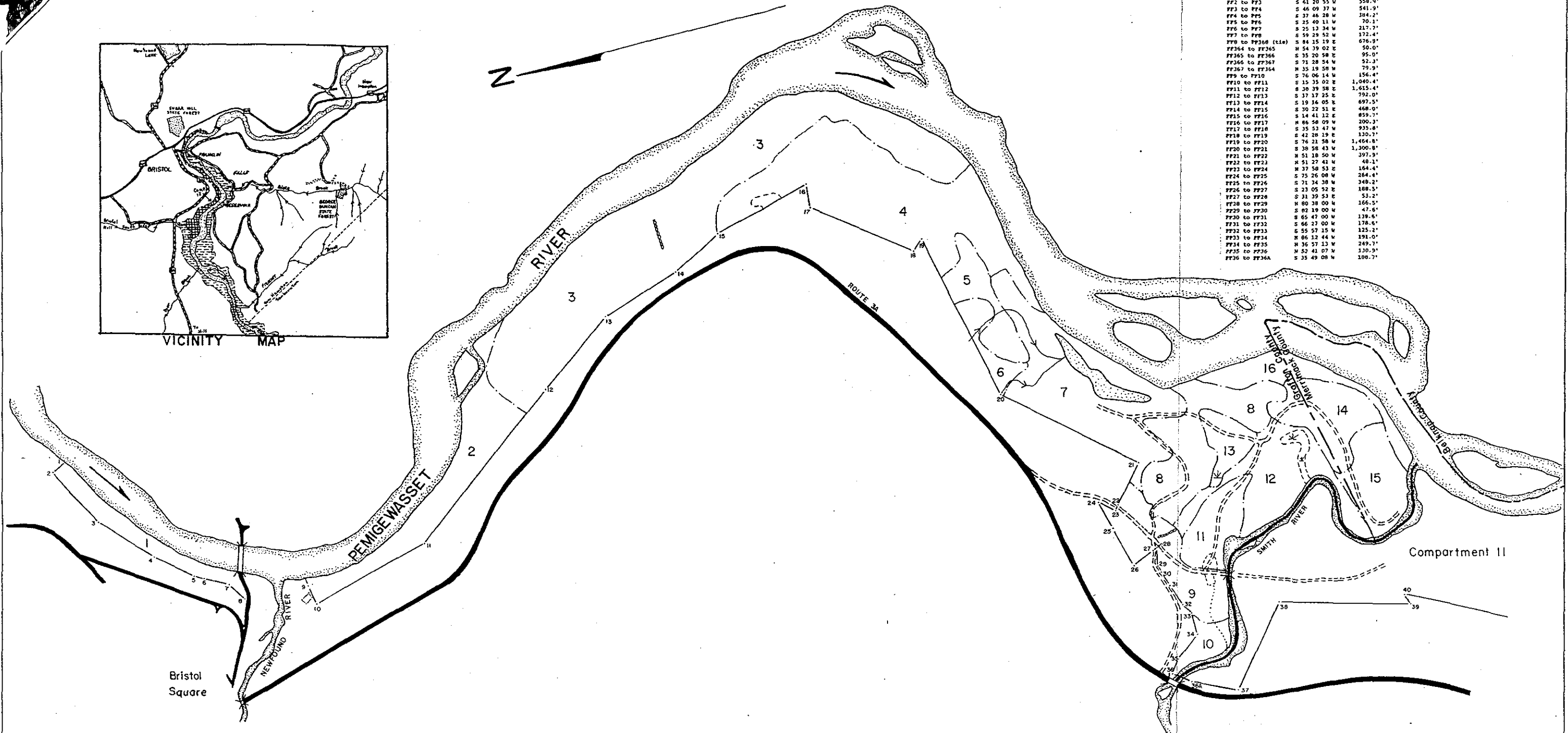
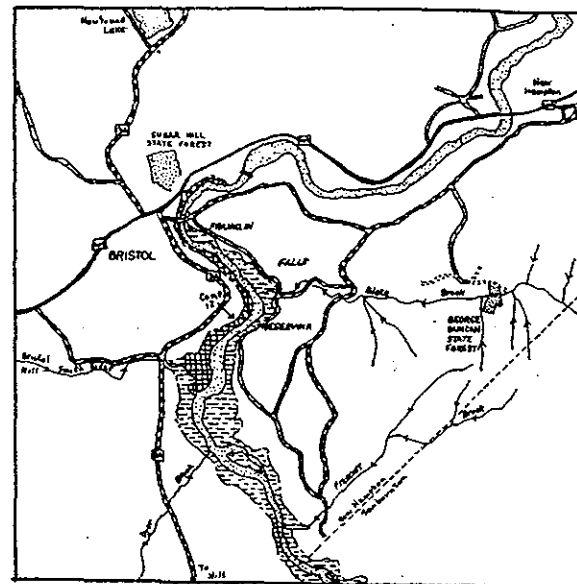
DRAWN BY: MAC GREGOR, STAATS

Figure A-11

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Compartment 12 Magnetic Bearings Franklin Falls

| | | |
|--------------------|--------------|----------|
| FF1 to FF2 | N 24 01 49 W | 135.0' |
| FF2 to FF3 | S 61 20 55 W | 558.9' |
| FF3 to FF4 | S 46 09 37 W | 541.9' |
| FF4 to FF5 | S 37 46 28 W | 304.2' |
| FF5 to FF6 | S 25 40 11 W | 70.1' |
| FF6 to FF7 | S 25 13 34 W | 217.7' |
| FF7 to FF8 | S 59 29 52 W | 172.4' |
| FF8 to FF368 (tie) | S 84 15 19 E | 676.9' |
| FF368 to FF365 | N 54 39 02 E | 50.0' |
| FF365 to FF366 | S 35 20 58 E | 95.0' |
| FF366 to FF367 | S 71 28 54 W | 52.3' |
| FF367 to FF364 | N 35 19 58 W | 79.9' |
| FF9 to FF10 | S 76 06 14 W | 156.4' |
| FF10 to FF11 | S 35 35 02 E | 1,040.4' |
| FF11 to FF12 | S 30 39 58 E | 1,615.4' |
| FF12 to FF13 | S 37 17 25 E | 792.0' |
| FF13 to FF14 | S 19 16 05 E | 697.5' |
| FF14 to FF15 | S 30 22 51 E | 468.0' |
| FF15 to FF16 | S 14 41 12 E | 859.7' |
| FF16 to FF17 | N 86 58 09 W | 200.3' |
| FF17 to FF18 | S 35 53 47 W | 935.8' |
| FF18 to FF19 | S 42 28 19 E | 130.7' |
| FF19 to FF20 | S 76 21 58 W | 1,454.8' |
| FF20 to FF21 | S 38 58 43 W | 1,300.8' |
| FF21 to FF22 | N 51 18 50 W | 397.9' |
| FF22 to FF23 | N 51 27 41 W | 48.1' |
| FF23 to FF24 | N 37 58 53 E | 164.4' |
| FF24 to FF25 | S 75 26 08 W | 284.4' |
| FF25 to FF26 | S 71 34 38 W | 348.2' |
| FF26 to FF27 | S 23 05 52 E | 188.5' |
| FF27 to FF28 | S 31 39 53 E | 53.2' |
| FF28 to FF29 | N 80 38 00 W | 166.5' |
| FF29 to FF30 | S 82 19 09 W | 47.6' |
| FF30 to FF31 | S 65 47 00 W | 139.6' |
| FF31 to FF32 | S 66 27 00 W | 178.6' |
| FF32 to FF33 | S 55 57 15 W | 125.2' |
| FF33 to FF34 | N 86 12 44 W | 191.0' |
| FF34 to FF35 | N 36 57 13 W | 249.7' |
| FF35 to FF36 | N 52 41 07 W | 130.9' |
| FF36 to FF36A | S 35 49 08 W | 188.7' |



STAND TYPE MAP
U.S. ARMY CORPS OF ENGINEERS
**FRANKLIN FALLS
FLOOD CONTROL AREA**
LEASED BY
DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT
BRISTOL and HILL, NH
COMPARTMENT 12
1/22/90
CRUISED BY: STAATS, SEABOYER & DESMARAIS DRAWN BY: MacGREGOR, STAAT

Figure A-12

Table A-2
Wildlife Species Found at Franklin Falls Reservoir

MAMMALS (1)

| <u>Common Name</u> | <u>Scientific Name</u> |
|----------------------------|----------------------------------|
| Whitetail Deer | <u>Odocoileus virginianus</u> |
| Black Bear* | <u>Ursus americana</u> |
| Moose | <u>Alces alces</u> |
| Bobcat | <u>Felis rufus</u> |
| Coyote | <u>Canis latrans</u> |
| Red Fox | <u>Vulpes vulpes</u> |
| Gray Fox | <u>Urocyon cinereoargenteus</u> |
| Varying (Snowshoe) Hare | <u>Lepus americanus</u> |
| New England Cottontail (2) | <u>Sylvilagus transitionalis</u> |
| Gray Squirrel | <u>Sciurus carolinensis</u> |
| Meadow Vole | <u>Microtus pennsylvanicus</u> |
| White Footed Mouse | <u>Peromyscus leucopus</u> |
| Mink | <u>Mustela vison</u> |
| Otter | <u>Lutra canadensis</u> |
| Beaver | <u>Castor canadensis</u> |
| Muskrat | <u>Ondatra zibethicus</u> |
| Striped Skunk | <u>Mephitis mephitis</u> |
| Short Tailed Weasel | <u>Mustela erminea</u> |
| Fisher | <u>Martes pennanti</u> |
| Northern Flying Squirrel | <u>Glaucomys sabrinus</u> |
| Red Squirrel | <u>Tamiasciurus hudsonicus</u> |
| Deer Mouse | <u>Peromyscus maniculatus</u> |
| Short Tailed Shrew | <u>Blarina brevicauda</u> |
| Woodchuck | <u>Marmota monax</u> |
| Eastern Chipmunk | <u>Tamias striatus</u> |
| Raccoon | <u>Procyon lotor</u> |
| Opossum | <u>Didelphis virginiana</u> |

* Occasional Visitor

(1) Burt and Grossenheider, 1952

(2) of special concern in New Hampshire

Table A-2 (continued)

BIRDS (Including Migrants) (3)

| | |
|------------------------|---------------------------------|
| Ruffed Grouse | <u>Bonasa umbellus</u> |
| American Woodcock | <u>Philohela minor</u> |
| Ringneck Pheasant | <u>Phasianus colchicus</u> |
| Indigo Bunting | <u>Passerina cyanea</u> |
| Snow Bunting | <u>Plectrophenax nivalis</u> |
| Eastern Bluebird | <u>Sialia sialis</u> |
| Peregrine Falcon (4) | <u>Falco peregrinus</u> |
| Sparrow Hawk (Kestrel) | <u>Falco sparverius</u> |
| Pigeon Hawk (Merlin) | <u>Falco columbarius</u> |
| Great Horned Owl | <u>Bubo virginianus</u> |
| Osprey (5) | <u>Pandion haliaetus</u> |
| Bald Eagle (4) | <u>Haliaeetus leucocephalus</u> |
| Red-tailed Hawk | <u>Buteo jamaicensis</u> |
| Goshawk | <u>Accipiter gentilis</u> |
| Marsh Hawk | <u>Circus cyaneus</u> |
| Broad Winged Hawk | <u>Buteo platypterus</u> |
| Common Crow | <u>Corvus brachyrhynchos</u> |
| Turkey Vulture* | <u>Cathartes aura</u> |
| Canada Goose | <u>Branta canadensis</u> |
| Hooded Merganser | <u>Lophodytes cucullatus</u> |
| Common Merganser | <u>Mergus merganser</u> |
| Common Loon (5) | <u>Gavia immer</u> |
| Black Duck | <u>Anas rubripes</u> |
| Mallard | <u>Anas platyrhynchos</u> |
| Wood Duck | <u>Aix sponsa</u> |
| American Golden Eye | <u>Bucephala clangula</u> |
| Ring-necked Duck | <u>Aythya collaris</u> |
| Snow Goose* | <u>Chen caerulescens</u> |
| Great Blue Heron | <u>Ardea herodias</u> |
| Green Winged Teal | <u>Anas crecca</u> |
| Blue-winged Teal | <u>Anas discors</u> |
| Sparrows | <u>Family Fringillidae</u> |
| Finches | <u>Family Fringillidae</u> |
| Warblers | <u>Family Parulidae</u> |
| Pileated Woodpecker | <u>Dryocopus pileatus</u> |
| Flicker | <u>Colaptes auratus</u> |
| Hairy Woodpecker | <u>Picoides villosus</u> |
| Downy Woodpecker | <u>Picoides pubescens</u> |
| Mourning Dove | <u>Zenaidura macroura</u> |

* Occasional Visitor

(3) American Ornithological Union, 1973

(4) endangered in New Hampshire

(5) threatened in New Hampshire

Table A-2 (continued)

REPTILES

| | |
|------------------------|--------------------------------|
| Northern Water Snake | <u>Nerodia sipedon</u> |
| Milk Snake | <u>Lampropeltis triangulum</u> |
| Eastern Garter Snake | <u>Thamnophis sirtalis</u> |
| Eastern Ribbon Snake | <u>Thamnophis sauritus</u> |
| Black Rat Snake | <u>Elaphe obsoleta</u> |
| Snapping Turtle | <u>Chelydra serpentina</u> |
| Musk Turtle - Stinkpot | <u>Sternotherus odoratus</u> |
| Wood Turtle ** | <u>Clemmys insculpta</u> |
| Painted Turtle | <u>Chrysemys picta</u> |
| Spotted Turtle | <u>Clemmys guttata</u> |

AMPHIBIANS

| | |
|---------------------------|----------------------------------|
| Bullfrog | <u>Rana catesbeiana</u> |
| Northern Leopard Frog | <u>Rana pipiens</u> |
| Green Frog | <u>Rana clamitans</u> |
| Tree Frog | <u>Hyla spp.</u> |
| Peepers | <u>Hyla crucifer</u> |
| American Toad | <u>Bufo americanus</u> |
| Eastern Spadefoot Toad ** | <u>Scaphiopus holbrooki</u> |
| Eastern Newt | <u>Notophthalmus viridescens</u> |
| Spotted Salamander | <u>Ambystoma maculatum</u> |

** Population status unknown

APPENDIX B

**EXEMPLARY NATURAL COMMUNITIES
AND
NATURAL COMMUNITIES OF LOCAL SIGNIFICANCE**

Table B-1
Franklin Falls Project - Summary: Natural Communities

| COMMUNITY TYPE | OBSERVATION POINT |
|---|---|
| <u>Exemplary natural communities</u> * | |
| Dry sandy riverbluff opening/woodland | 2, 6, 23, 32, 52, 78 |
| Little bluestem grassland | 3 |
| Floodplain complex (most o.p.s include floodplain forest and/or thicket - floodplain marshes more variable) | |
| | 9, 10, 18, 40, 46, 51, 57, 59, 60, 73, 74, 75, 76 |
| Floodplain oxbow pond: | 24, 34, 79 |
| Floodplain meadow: | 58 |
| Rich mesic forest | 20, 55 |
| <u>Natural communities of local significance</u> * * | |
| Dry pitch pine-Appalachian oak forest/woodland | 63 |
| Dry Appalachian oak-(hickory) forest | 70, 71 |
| Forest seep | 8, 19, 19a, 27 |
| Hemlock-beech-oak-pine forest | 1, 5, 28, 77 |
| High-energy riverbank | 4, 7, 16 |
| Mesic Appalachian oak-sugar maple-beech-hemlock forest | 36 |

* See Figures B-1 through B-4 for locations. Numbered circles denote compartments

* * See Figures B-5 through B-8 for locations. Numbered circles denote compartments



Figure B-2 Exemplary Natural Community Observation Points (cited in Table B-1)

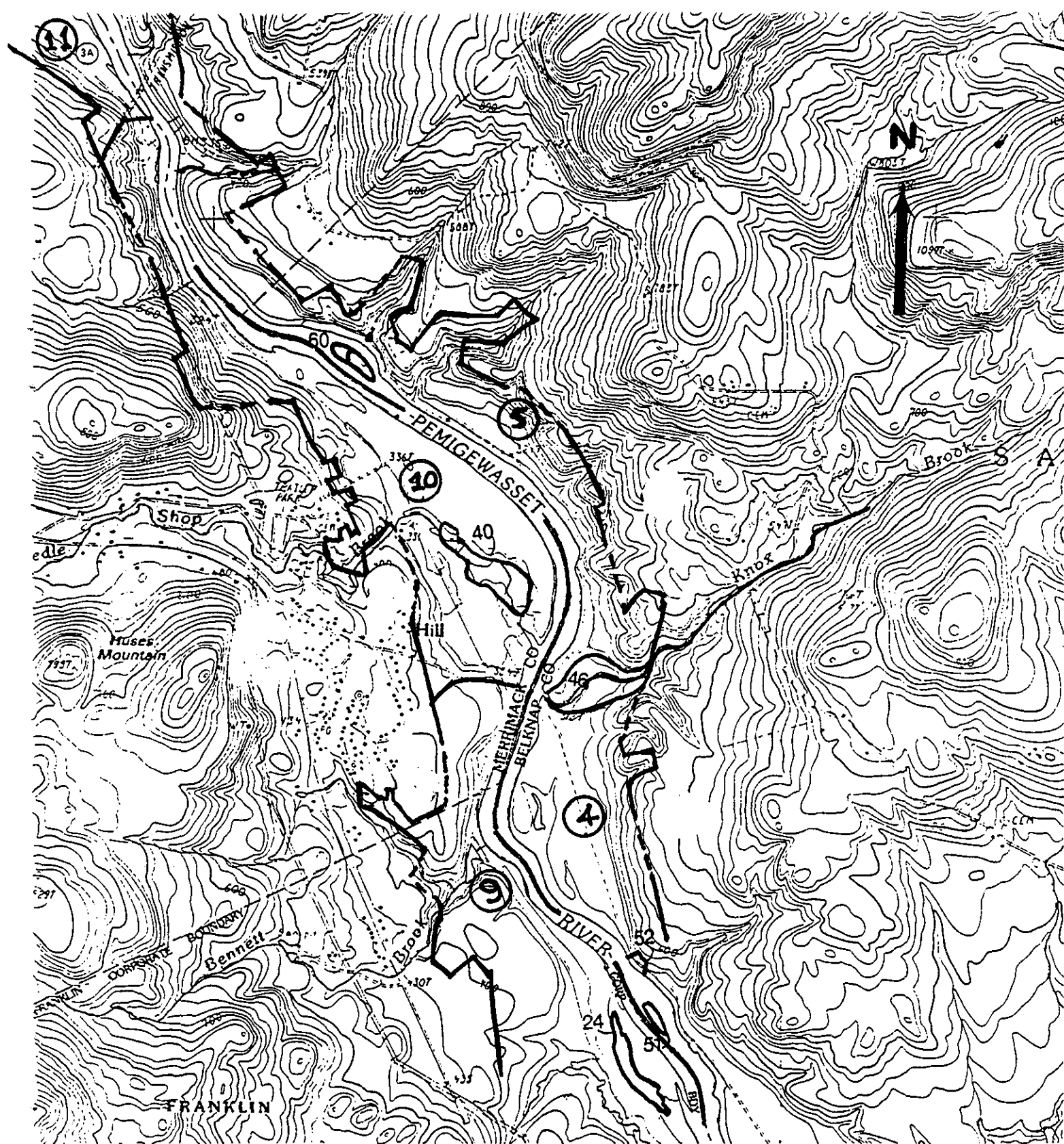
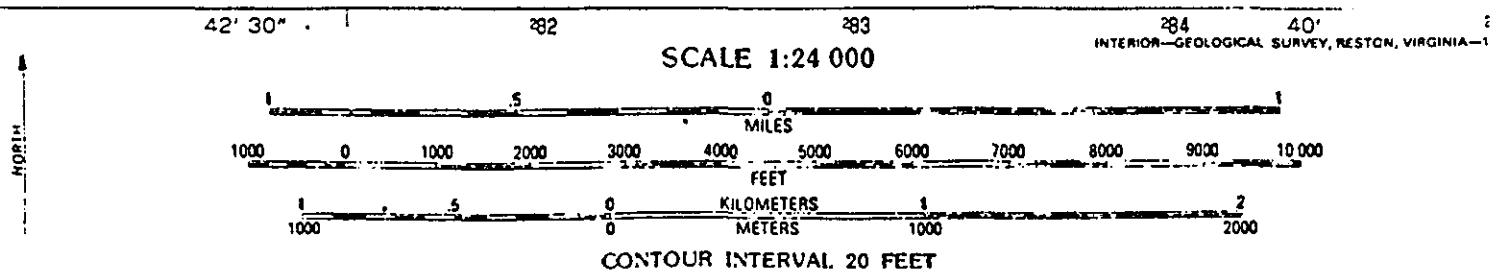


Figure B-3 Exemplary Natural Community Observation Points (cited in Table B-1)



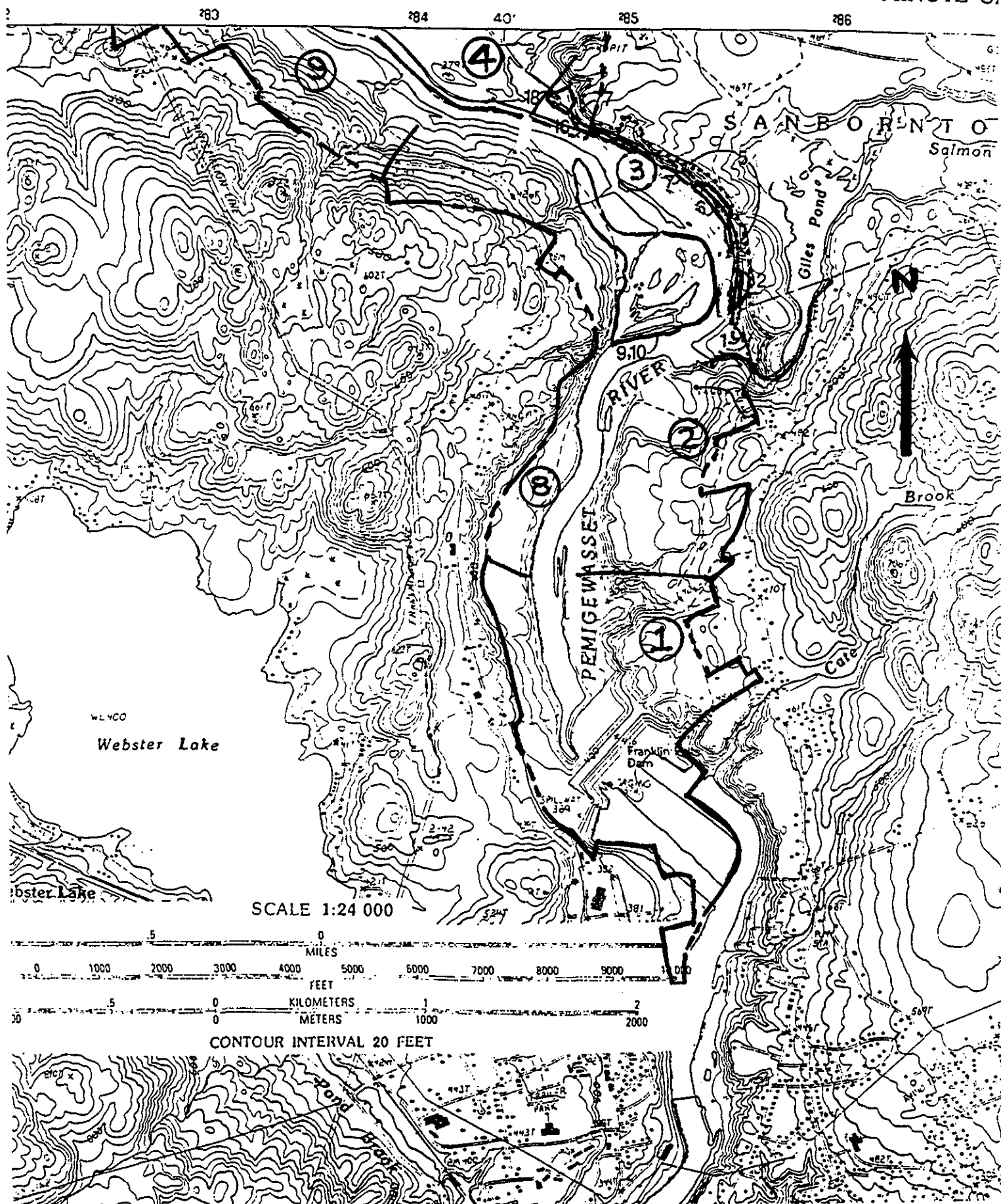


Figure B-4 Exemplary Natural Community Observation Points (cited in Table B-1)



Figure B-5 Communities of Local Significance Observation Points (cited in Table B-1)

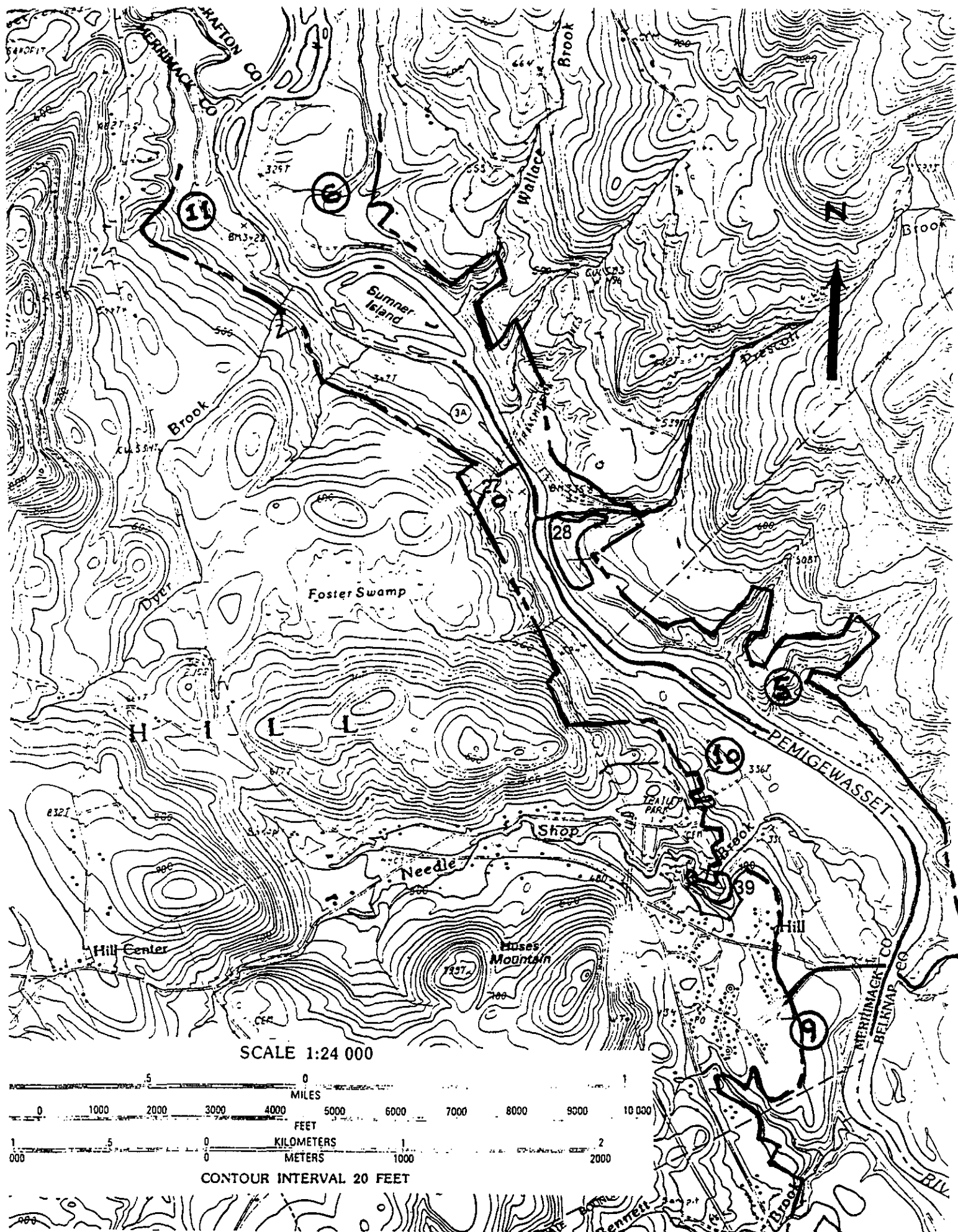


Figure B-6 Communities of Local Significance Observation Points (cited in Table B-1)

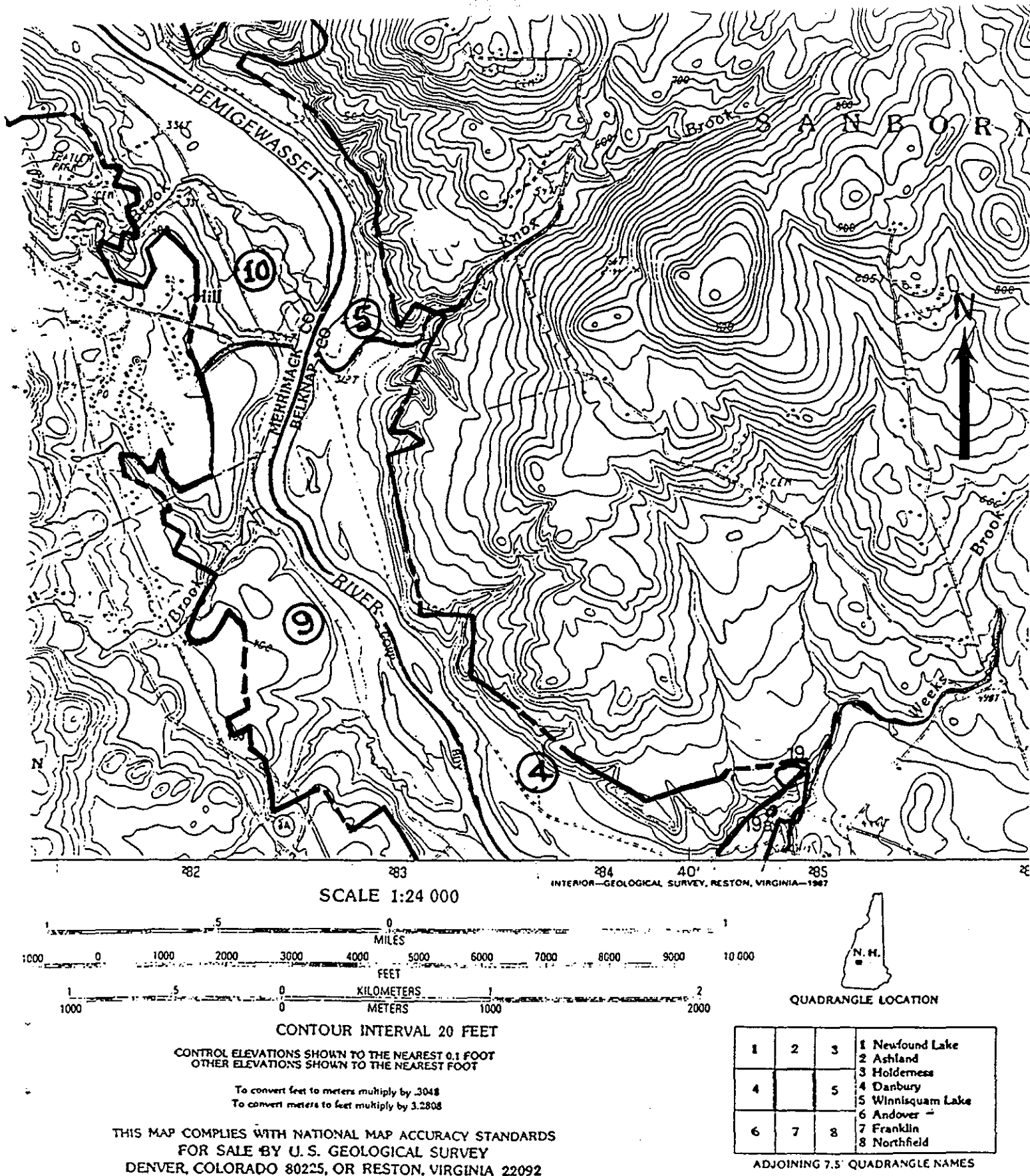
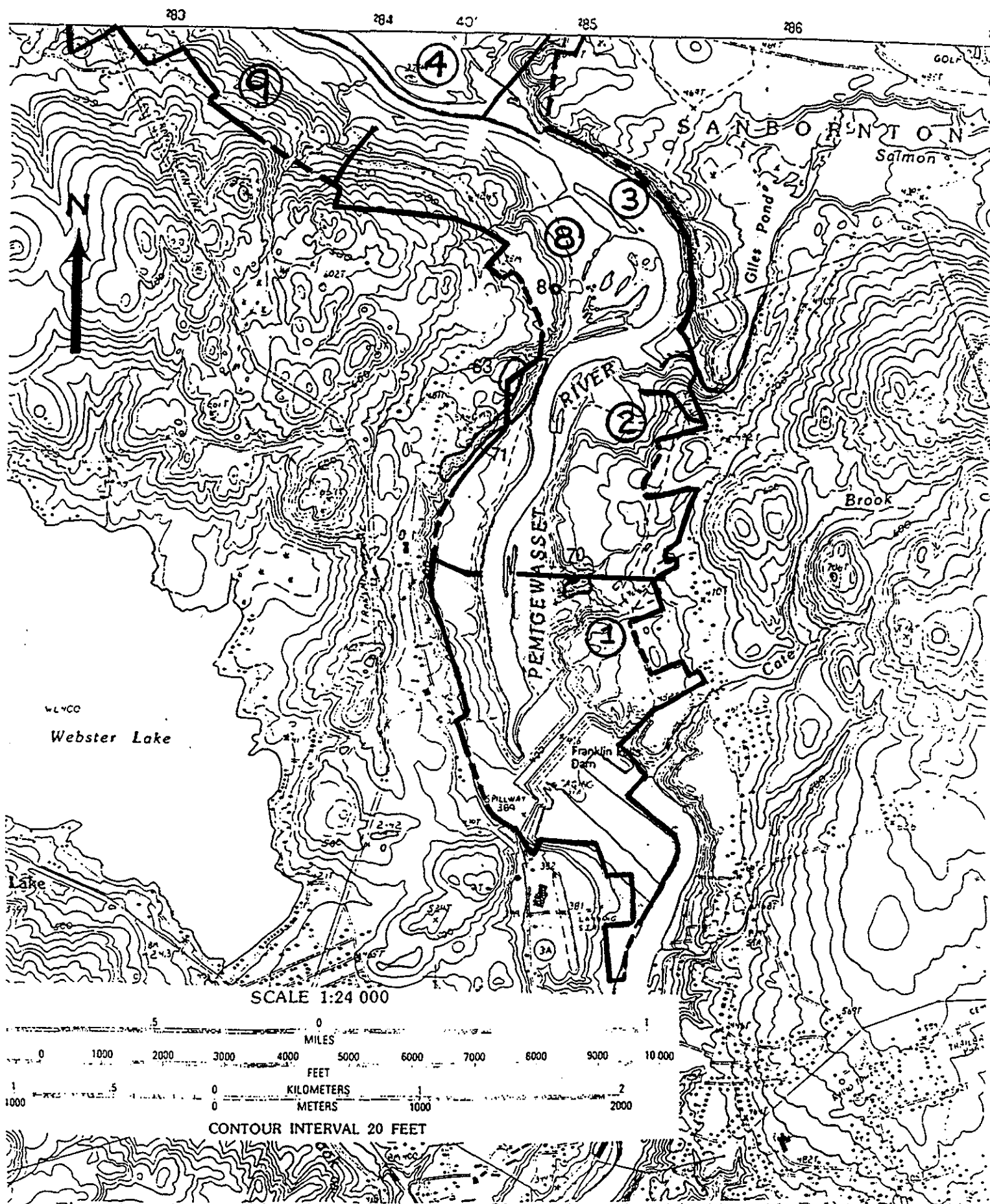


Figure B-7 Communities of Local Significance Observation Points (cited in Table B-1)



APPENDIX C

**WETLANDS SURVEY FOR THE FRANKLIN FALLS PROJECT
FLOOD CONTROL FACILITIES**

FINAL

**WETLAND SURVEY FOR THE
FRANKLIN FALLS DAM
FLOOD CONTROL FACILITIES**

Submitted to

**Department of the Army
U.S. Army Corps of Engineers
New England Division**

**Contract No. DACW33-96-0005
Delivery Order No. 3**

February 4, 1997

Prepared by

**COLER & COLANTONIO, INC.
101 ACCORD PARK DRIVE
NORWELL, MA 02061-1685
(617) 982-5400**

Under Contract to

**BATTELLE OCEAN SCIENCES
397 Washington Street
Duxbury, MA 02332
(617) 934-0571**

Wetland Description

I. Introduction

The Franklin Falls Project area contains 3,897 acres of land that surround the Pemigewasset River. The area was formed through glacio-fluvial processes depositing thick layers of glacial outwash and stratified sand and gravel. This has resulted in hilly terrain and steep banks leading to the river. The majority of the wetland sites are found in oxbow areas within the river corridor and are subject to periodic or seasonal flooding. The wetland classes in this area are tolerant of this type of flooding with regular nutrient flushing. The wetland vegetation consists of alder shrub swamps and sedge dominated emergent swamps that are tolerant of high energy hydrology.

II. Wetland Delineation Methodology

The wetlands determination for Franklin Falls Dam was conducted through interpretation of aerial photography and follow-up onsite field inspections (groundtruthing) of wetlands locations in order to confirm boundaries, determine areal extent and confirm classification.

The offsite wetlands determination was conducted primarily through interpretation of stereo-paired black and white aerial photographic 9 inch x 9 inch contact prints. Wetlands and deepwater habitats were located based on identifying observable, characteristic photographic signatures evidenced by color (gray-scale), texture, landscape position, vegetation and relative depth of field. Wetlands and other waters were then identified and delineated onto the acetate overlays. Wetlands were individually demarcated and classified based on the *Classification of Wetlands and Deepwater Habitats* (Cowardin et al., 1979) system, including applying the ACOE-NED modifiers specific to this assessment. In instances where cover types were obscured, or where determination of hydrologic regime (upland vs. wetland) was difficult (e.g. palustrine forested wetlands), a note was made to conduct a field inspection.

Once draft wetland maps (on acetate overlays) were completed, areas identified as wetlands were groundtruthed. Groundtruthing afforded the opportunity to refine wetlands boundaries, classify wetlands cover types, identify dominant plant species and confirm hydrologic regime. Acetate overlays were used during field groundtruthing efforts and were modified where necessary based on the field inspections.

Wetland areas were transferred to a photomosaic mylar of the entire project area. In addition, ACOE Project Boundaries and some geographic features (i.e. roads, towns, etc.) were added to aid users in locating individual wetland areas. Once all inking was completed, the mylar basemap was appropriately sized, and cut for mounting on an 11 inch x 17 inch template and individual wetland locations were labelled in accordance with the classification scheme. Acreage was calculated for each wetland area and tabulated by cover type (see Table 1).

III. Plant Species by Wetland Class

Described below are the wetland classes that were identified within the project area. Included with the classes is a description of the vegetational communities and a list of plant species that were identified in the wetland class.

Wetland Class-POW Palustrine Open Water

The Palustrine Open Water classification is used for areas of standing water smaller than 20 acres. Palustrine Open Water bodies contain no identifiable surface vegetation (such as coontails, water lilies, cattails or grasses) because of the lack of sunlight or unsuitable soil substrate biochemistry. These areas are generally fed by intermittent or perennial streams. Approximately 5.3 acres of Palustrine Open Water areas were found in the Franklin Falls Dam project area.

Wetland Class-PAB1 Palustrine Aquatic Bed Vegetation-Rooted Vascular

Palustrine Aquatic Bed Vegetation-Rooted Vascular is found in areas of permanent ponding where the water depth varies from 1.5 to 6.0 feet. In this water regime there is enough sunlight to allow plant growth. Plant species root in the substrate and produce leaves and flowers at or near the surface of the water. Approximately 7.3 acres of this wetland type were identified in the Franklin Falls Dam project area. A large area of Palustrine Aquatic Bed Vegetation-Rooted Vascular is found in Shaw's Cove.

Plant species that were identified in this class are as follows:

| | |
|----------------------------|------------------|
| <i>Nuphar variegatum</i> | yellow pond lily |
| <i>Elodea canadensis</i> | waterweed |
| <i>Najas guadalupensis</i> | bushy pondweed |
| <i>Polygonum amphibium</i> | water smartweed |
| <i>Brasenia schreberi</i> | water shield |

Wetland Class-PEM1 Palustrine Emergent Vegetation-Persistent

Palustrine Emergent Vegetation-Persistent is found in areas of permanent and seasonal inundation where the water depth generally does not exceed 1.5 feet. This water regime is favorable for plant species that prefer or are adaptable to root growth in permanently saturated or inundated soils. There are generally two types of wetlands in this class, marshes and wet meadows. Marshes are generally wetter than wet meadows and are typically associated with borders of shallow ponds. Typical vegetation within a marsh includes cattails, arrowheads and smartweed. Wet meadows tend to be dominated by wildflowers such as joe-pye weed and a wide variety of grasses and grass-like. Approximately 28.9 acres of Palustrine Emergent Vegetation-Persistent were identified in the Franklin Falls Dam project area.

Plant species that were identified in this class are as follows:

| | |
|-----------------------------------|-----------------------|
| <i>Typha latifolia</i> | cattail |
| <i>Onoclea regalis</i> | royal fern |
| <i>Onoclea sensibilis</i> | sensitive fern |
| <i>Iris versicolor</i> | blue flag iris |
| <i>Scirpus cyperinus</i> | woolgrass |
| <i>Scirpus atrovirens</i> | dark green bulrush |
| <i>Cyperinus strigosus</i> | umbrella sedge |
| <i>Sparganium</i> spp. | burreed |
| <i>Carex stricta</i> | tussock sedge |
| <i>Carex scoparia</i> | pointed broom sedge |
| <i>Carex vulpinoidea</i> | fox sedge |
| <i>Carex stipata</i> | sedge |
| <i>Carex intumescens</i> | bladder sedge |
| <i>Carex lurida</i> | shallow sedge |
| <i>Eleocharis</i> spp. | spike rush |
| <i>Glyceria canadensis</i> | rattlesnake grass |
| <i>Juncus effusus</i> | soft rush |
| <i>Juncus canadensis</i> | Canada rush |
| <i>Polygonum</i> spp. | smartweed |
| <i>Sagittaria latifolia</i> | broad leaf arrow-head |
| <i>Eupatorium perfoliatum</i> | boneset |
| <i>Eupatoriadelphus maculatus</i> | joe-pye-weed |
| <i>Impatiens capensis</i> | jewelweed |
| <i>Cladium mariscoides</i> | twig rush |
| <i>Hypericum virginicum</i> | marsh St. John's-wort |
| <i>Lycopus virginicus</i> | bugleweed |

Wetland Class-PSS1 Palustrine Broad-Leaved Deciduous Shrub Swamp Vegetation

Palustrine Broad-Leaved Deciduous Shrub Swamp vegetation is found in areas of temporary inundation. Deciduous shrub swamp vegetational communities can have a wide variety of plant species. In the areas of hydrologic energy near the shores of the rivers and around the islands in the rivers, shrub swamp communities are found that are composed of alders and willows. In the deeper sections of the rivers, oxbows shrub swamp communities are composed of silky dogwood, northern arrow-wood and spicebush. Approximately 131.1 acres of Palustrine Broad-Leaved Deciduous Shrub Swamp vegetation were identified in the Franklin Falls Dam project area. In an old oxbow located to the north of Sumner Island, the dominant Palustrine Broad-Leaved Deciduous Shrub Swamp plant species is meadowsweet.

Plant species that were identified in this class are as follows:

| | |
|-----------------------------------|---------------------|
| <i>Alnus</i> spp. | alder |
| <i>Ilex verticillata</i> | wintergreen |
| <i>Viburnum dentatum</i> | northern arrow-wood |
| <i>Viburnum cassinoides</i> | with-e-rod |
| <i>Cornus amomum</i> | silky dogwood |
| <i>Vaccinium corymbosum</i> | high bush blueberry |
| <i>Lindera benzion</i> | spicebush |
| <i>Nemopanthus mucronata</i> | mountain holly |
| <i>Salix</i> spp. | willow |
| <i>Onoclea regalis</i> | royal fern |
| <i>Onoclea sensibilis</i> | sensitive fern |
| <i>Thelypteris thelypteroides</i> | marsh fern |
| <i>Sphagnum</i> spp. | sphagnum moss |
| <i>Spirea latifolia</i> | meadowsweet |
| <i>Acer rubrum</i> | red maple |

Wetland Class-PFO1 Palustrine Broad-Leaved Deciduous Forested Swamp Vegetation

Palustrine Broad-Leaved Deciduous Forested Swamps are found in areas of seasonal inundation or saturation. The overstory is generally dominated by red maple trees with an understory of high bush blueberry, winterberry or viburnum shrubs. Approximately 128.0 acres of Palustrine Broad-Leaved Deciduous Forested Swamp vegetation were identified in the Franklin Falls Dam project area.

Plant species that were identified in this class are as follows:

| | |
|--------------------|-----------|
| <i>Acer rubrum</i> | red maple |
|--------------------|-----------|

| | |
|------------------------------------|---------------------|
| <i>Rhamnus frangula</i> | European buckthorn |
| <i>Populus tremula</i> | trembling aspen |
| <i>Populus deltoides</i> | eastern cottonwood |
| <i>Ulmus americana</i> | American elm |
| <i>Ilex verticillata</i> | wintergreen |
| <i>Viburnum dentatum</i> | northern arrow-wood |
| <i>Viburnum cassinoides</i> | with-e-rod |
| <i>Cornus amomum</i> | silky dogwood |
| <i>Vaccinium corymbosum</i> | high bush blueberry |
| <i>Lindera benzoin</i> | spicebush |
| <i>Onoclea regalis</i> | royal fern |
| <i>Onoclea sensibilis</i> | sensitive fern |
| <i>Thelypteris thelypteroides</i> | marsh fern |
| <i>Osmunda cinnamomea</i> | cinnamon fern |
| <i>Parthenocissus quinquefolia</i> | Virginia creeper |
| <i>Impatiens capensis</i> | jewelweed |
| <i>Boehmeria cylindrica</i> | false nettle |
| <i>Galium tinctorum</i> | bedstraw |
| <i>Rubus hispidus</i> | swamp dewberry |
| <i>Toxicodendron radicans</i> | poison ivy |
| <i>Aster divaricatus</i> | white wood aster |
| <i>Thalictrum polygamum</i> | meadow rue |

Wetland Class-PFO4 Palustrine Needle-Leaved Evergreen Forested Swamp Vegetation

Palustrine Needle-Leaved Evergreen Forested Swamps are found in areas of seasonal inundation or saturation. The plant communities are generally composed of white pine, hemlock or balsam fir trees that provide a dense overstory. The understory vegetation tends to be thin and is comprised of various species of ferns, dewberry and goldthread. Approximately 11.0 acres of Palustrine Needle-Leaved Evergreen Forested Swamp vegetation were identified in the Franklin Falls Dam project area.

Plant species that were identified in this class are as follows:

| | |
|------------------------------------|---------------------|
| <i>Pinus strobus</i> | white pine |
| <i>Tsuga canadensis</i> | eastern hemlock |
| <i>Abies balsamea</i> | balsam fir |
| <i>Boehmeria cylindrica</i> | false nettle |
| <i>Impatiens capensis</i> | jewelweed |
| <i>Parthenocissus quinquefolia</i> | Virginia creeper |
| <i>Coptis trifolia</i> | goldthread |
| <i>Sphagnum</i> spp. | sphagnum moss |
| <i>Thelypteris thelypteroides</i> | marsh fern |
| <i>Vaccinium corymbosum</i> | high bush blueberry |
| <i>Rubus hispidus</i> | dewberry |

Wetland Class-VP? Potential Vernal Pool

Vernal Pools are generally low areas that contain water for only part of the year or may contain water throughout the year, but do not support a fish population. Vernal pools are an important wetland resource because the pools serve as breeding habitat for a number of amphibian macro-invertebrate species including spotted salamander (*Ambystoma maculatum*), marbled salamander (*Ambystoma opacum*), red-spotted newt (*Notophthalmus viridescens*), wood frog (*Rana sylvatica*) and fairy shrimp (Order Anostraca). Vernal pools provide a safer breeding ground than permanent waters because there are no fish to prey on the eggs and larvae.

Identification of vernal pools is generally based on whether certain amphibian and/or macro-invertebrate species are present. Vernal pool identification must be timed such that the amphibians are in the breeding, egg or larval stage and the macro-invertebrates are in the larval or adult stage.

For the purpose of this study, potential vernal pools were located. Low areas containing water were identified as potential vernal pools if it appeared that the pools would hold water for a period of time (two months) and were isolated from a hydrologic system that may contain fish. No work was conducted to identify if a potential vernal pool actually supported vernal pool wildlife.

Thirteen potential vernal pools were found in the Franklin Falls project area.

Wetland Class-R Riverine-Open Water Contained in a Channel

The Riverine classification is used for areas of flowing water within a confined channel. This classification is for Riverine areas where there is no surface vegetation and includes rivers and perennial and intermittent streams. The area of Riverine wetlands was calculated where the widths of the water bodies are measurable. For smaller rivers and perennial and intermittent streams the lengths of the waterbodies were calculated. Approximately 391.2 acres of Riverine wetlands and approximately 8.5 miles of smaller rivers and streams were found in the Franklin Falls project area.

IV. Conclusion

The Franklin Falls Dam is a flood control project located on the Pemigewasset River. The project area of 3,897 acres contains approximately 702.8 acres of wetlands within the project boundaries and the wetland types vary from white pine swamps to aquatic bed vegetation in the River. The wetland resource areas are located mainly within oxbows of the River and do not extend far from the river because of the topography and soils of the area.

| Wetland Classification | Area in Acres |
|--|---------------|
| POW
Palustrine Open Water | 5.3 |
| PAB1
Palustrine Aquatic Bed | 7.3 |
| PEM1
Palustrine Emergent | 28.9 |
| PSS1
Palustrine Broad Leaved Deciduous Shrub
Swamp | 131.1 |
| PFO1
Palustrine Broad Leaved Deciduous Forested
Swamp | 128.0 |
| PFO4
Palustrine Needle Leaved Evergreen Forested
Swamp | 11.0 |
| R
Riverine Area | 391.2 |
| VP?
Number of Identified Potential Vernal Pools | 13 |
| Intermittent Streams Length (miles) | 8.5 |
| Total Area of Wetland Resources | 702.8 |

Table 1.
Areas of Wetlands by Classes

Table C-1
Wetland Classification System for
Corps of Engineers Flood Control Facilities

Palustrine System

- POW - water body less than 20 acres
- PAB1 - aquatic bed vegetation in palustrine system - rooted vascular (i.e. water-lily, water-shield, etc.)
- PAB2 - aquatic bed vegetation in palustrine system - floating vascular (i.e. coontail, Duckweed, etc.)
- PEM1 - emergent vegetation in palustrine system - persistent (i.e. cattail, carex, etc.)
- PEM2 - emergent vegetation in palustrine system - nonpersistent (i.e. pickerelweed, arrowhead, etc.)
- PM - moss wetland - sphagnum
- PSS1 - broad-leaved deciduous (i.e. alder, buttonbush)
- PSS2 - needle-leaved deciduous (i.e. larch)
- PSS3 - broad-leaved evergreen (i.e. Bog-laurel, labrador tea)
- PSS4 - needle-leaved evergreen (i.e. black spruce)
- PFO1 - broad-leaved deciduous (i.e. red maple)
- PFO2 - needle-leaved deciduous (i.e. larch)
- PFO4 - needle-leaved evergreen (i.e. Atlantic white cedar)

Riverine System

- R - open water contained within a channel
- RAB1 - aquatic bed vegetation in riverine system - rooted vascular (i.e. water-lily, water-shield, etc.)
- RAB2 - aquatic bed vegetation in riverine system - floating vascular (i.e. coontail, duckweed, etc.)
- REM1 - emergent vegetation in riverine system - persistent (i.e. cattail, carex, etc.)
- REM2 - emergent vegetation in riverine system - nonpersistent (i.e. pickerelweed, arrowhead, etc.)

Lacustrine System

- L - water body over 20 acres in size
- LAB1 - aquatic bed vegetation in lake water - rooted vascular (i.e. water-lily, water-shield, etc.)
- LAB2 - aquatic bed vegetation in lake water - floating vascular (coontail, duckweed, etc.)
- LEM1 - emergent vegetation in lake water - persistent (i.e. cattail, carex, etc.)
- LEM2 - emergent vegetation in lake water - nonpersistent (i.e. pickerelweed, arrowhead, etc.)

Table C-1 (continued)

Wetland Classification System for Corps of Engineers Flood Control Facilities

Non-wetland

U - upland

Modifiers

- * - area dominated by sphagnum (common associates include cotton-grass, pitcher-plants, sundew, cranberry leather-leaf, labrador tea, etc.)
- ^ - marsh or area characterized by emergent vegetation which is semipermanently flooded
- + - wet meadow or area characterized by narrow-leaved persistent emergent vegetation which is seasonally flooded
- o - standing, mostly dead deciduous/evergreen forest

----- intermittent stream

VP? possible vernal pool

LEGEND

PALUSTRINE SYSTEM

POW Open Water, Less Than 20 Acres (5.3 Acres)
PAB1 Aquatic Bed Vegetation, Rooted Vascular (7.3 Acres)
PEM1 Emergent Vegetation, Persistent (28.9 Acres)
PSS1 Shrub/Scrub Broad-Leaved Deciduous (131.1 Acres)
PFO1 Forested Broad-Leaved Deciduous (128.0 Acres)
PFO4 Forested Needle-Leaved Evergreen (11.0 Acres)

RIVERINE SYSTEM

R Open Water Contained Within a Channel (391.2 Acres)
----- Intermittent Streams (8.5 miles)

NON-WETLAND

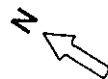
U Upland
--- Project Boundary

MODIFIERS

^ Marsh, Semipermanently flooded
+ Wet Meadow, Seasonally flooded
VP? Possible Vernal Pool

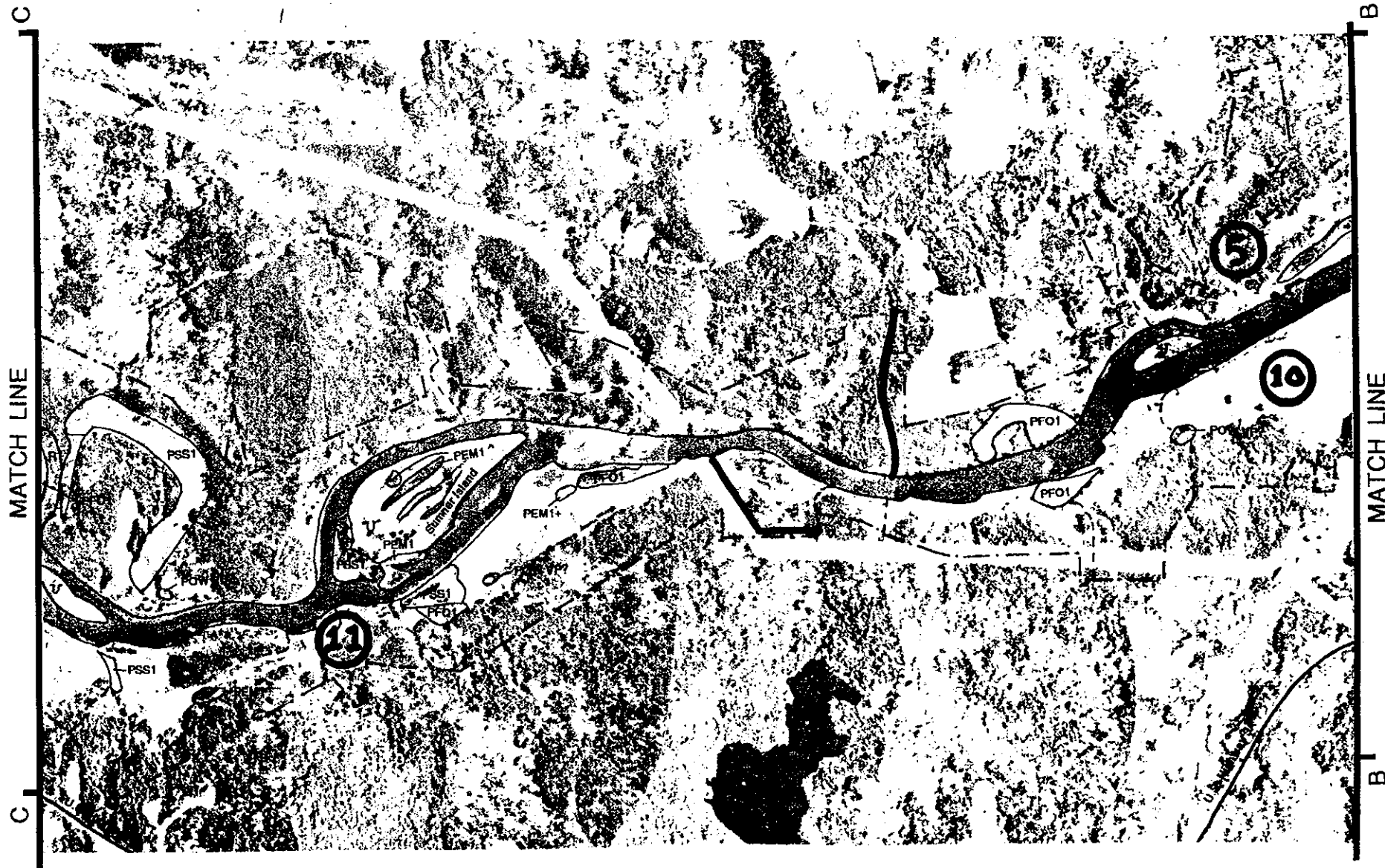
— Compartment Limit

⑦ Compartment Designation



WETLAND MAP
Merrimack River Basin
FRANKLIN FALLS DAM

ARMY CORPS OF ENGINEERS
NEW ENGLAND DIVISION
WALTHAM, MASSACHUSETTS

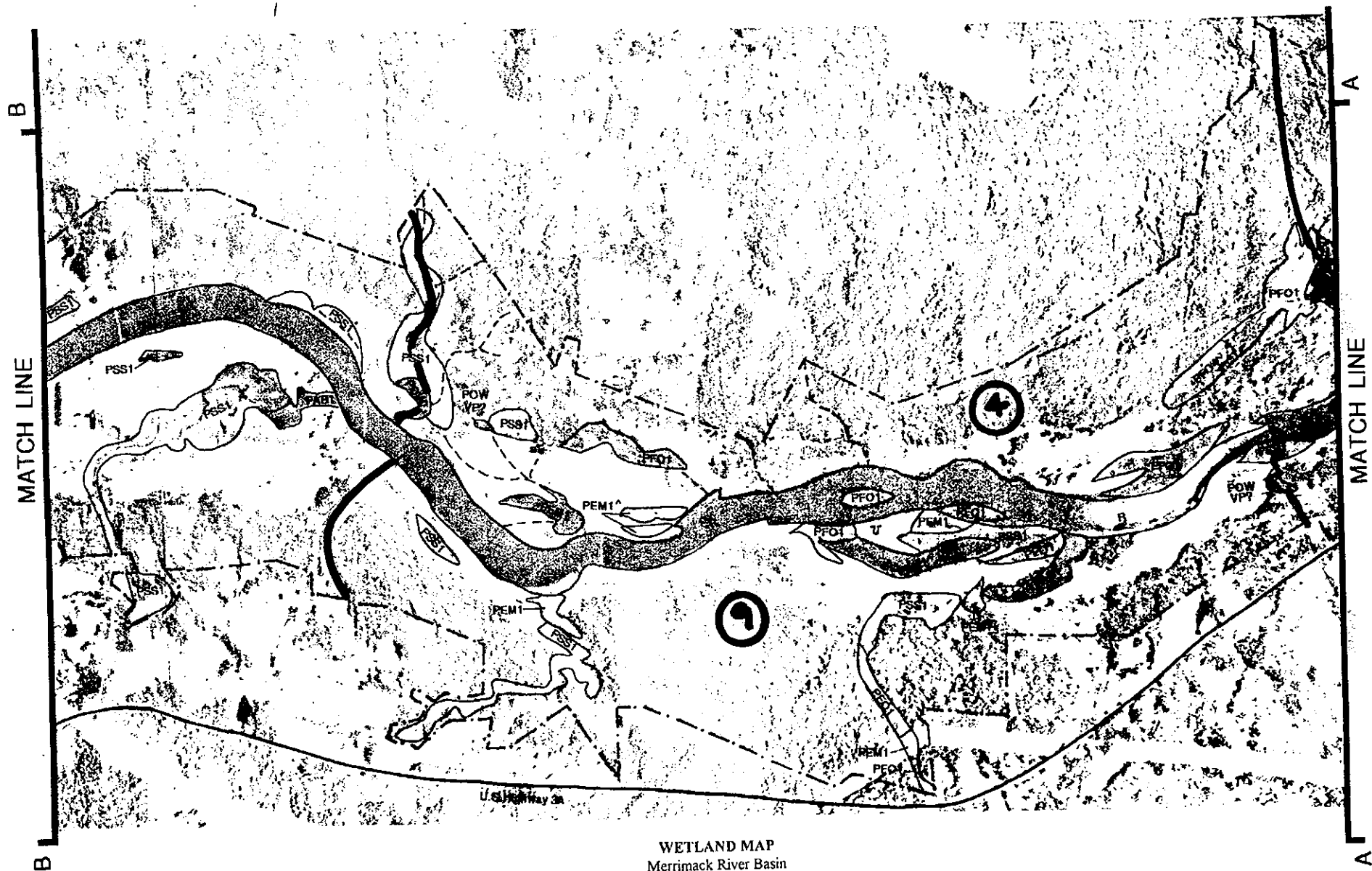


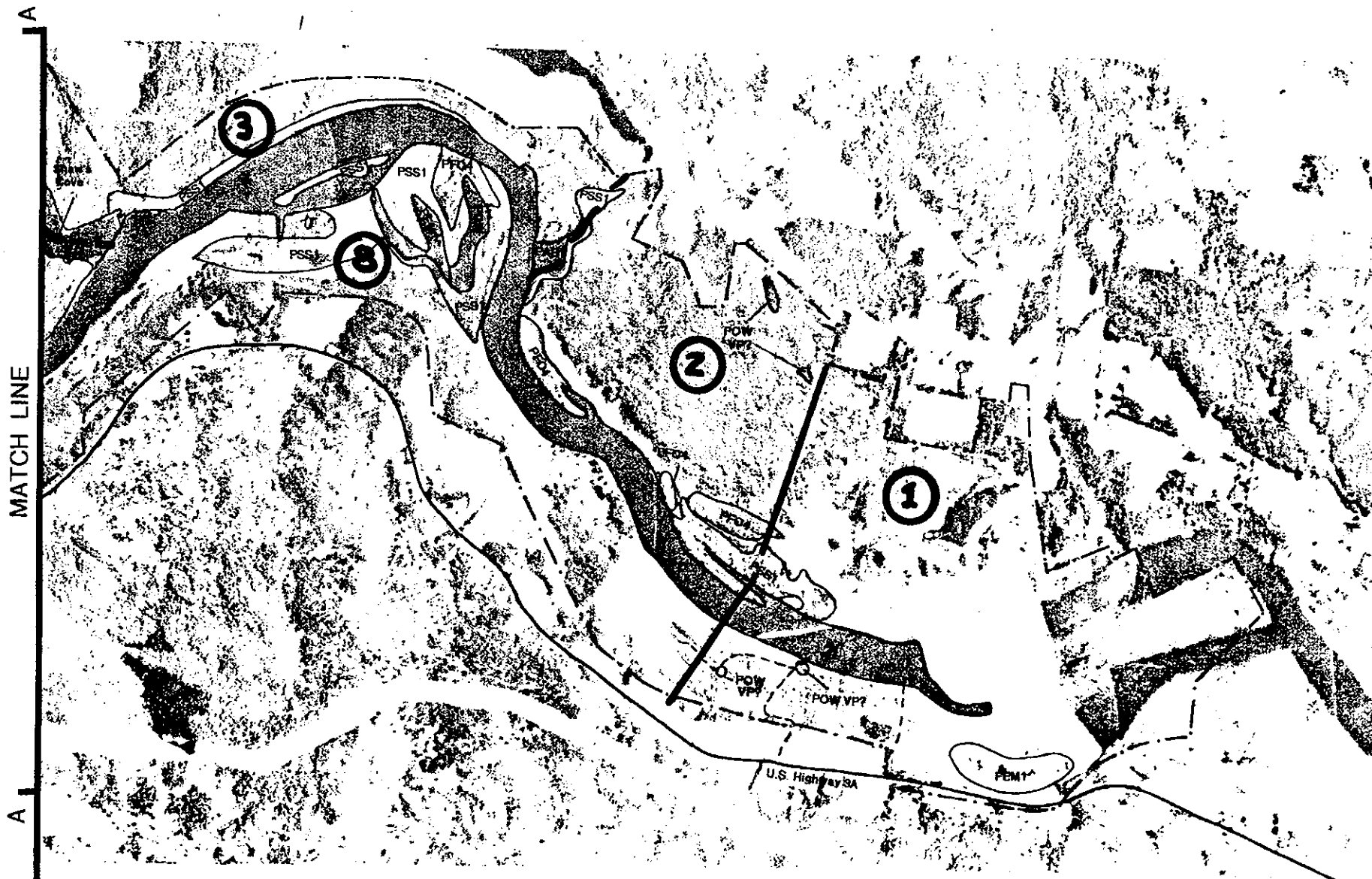
WETLAND MAP
Merrimack River Basin
FRANKLIN FALLS DAM

ARMY CORPS OF ENGINEERS
NEW ENGLAND DIVISION
WALTHAM, MASSACHUSETTS

Scale 1: 18,000

Page 2 of 4

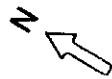




WETLAND MAP
Merrimack River Basin
FRANKLIN FALLS DAM

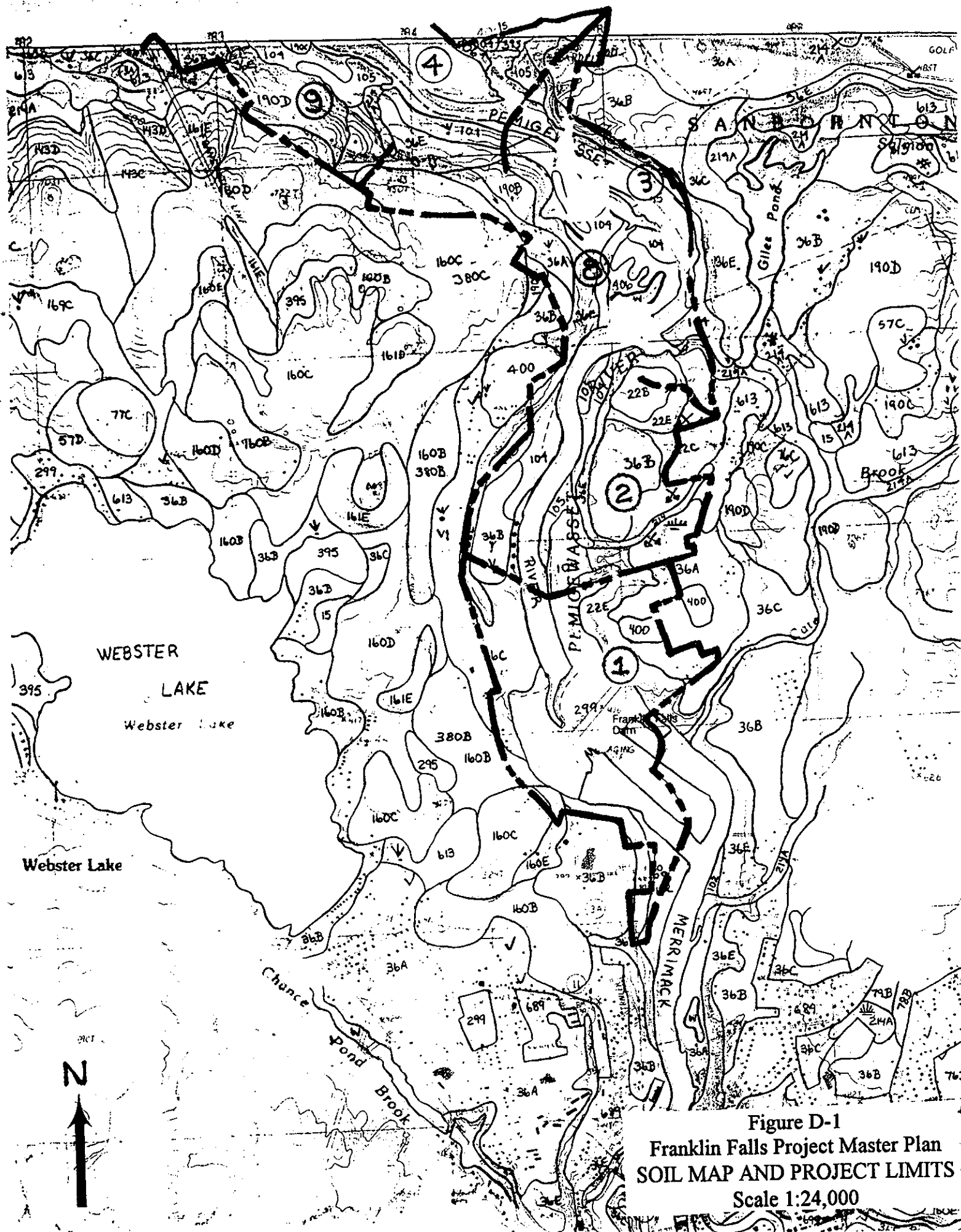
ARMY CORPS OF ENGINEERS
NEW ENGLAND DIVISION
WALTHAM, MASSACHUSETTS

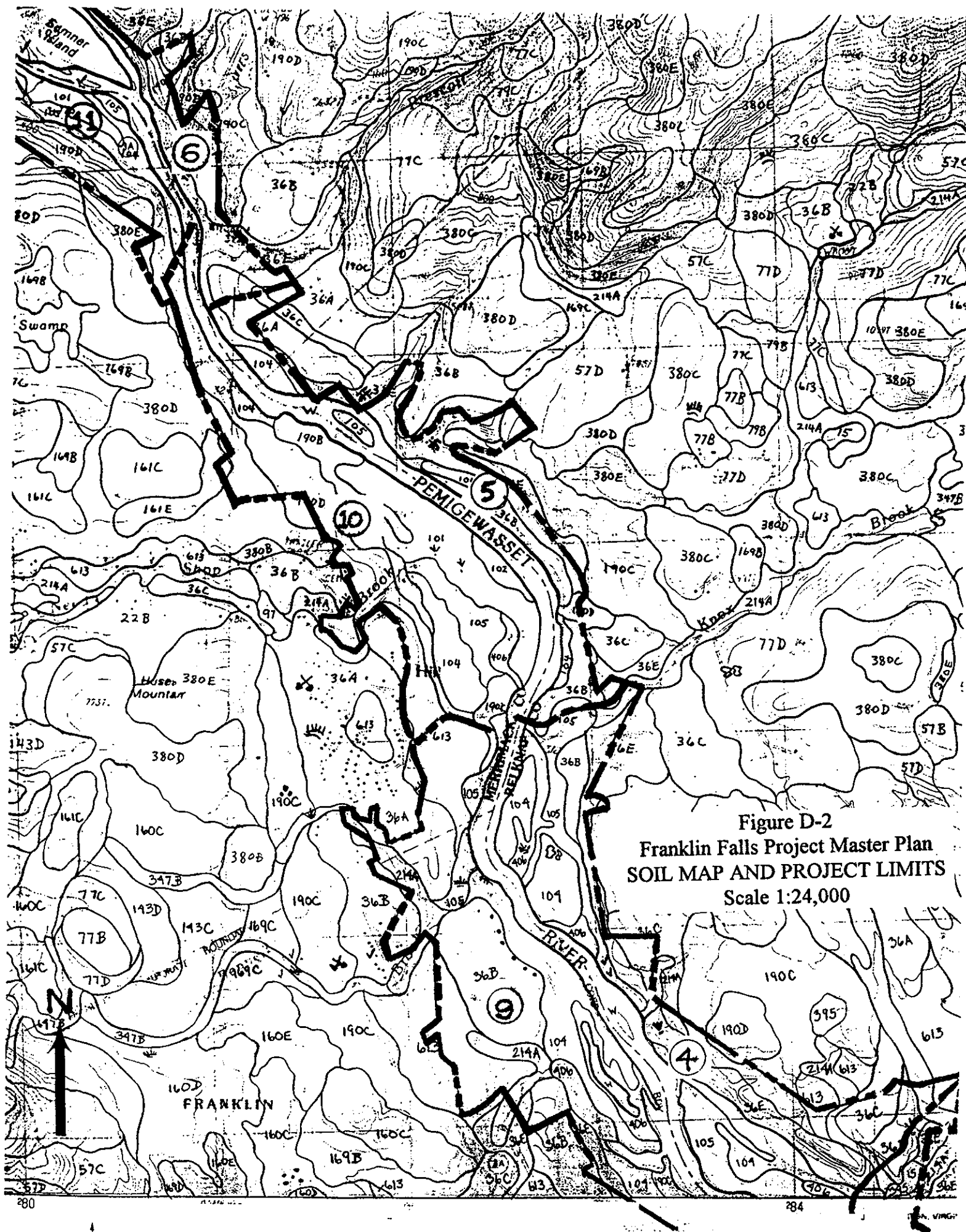
Scale 1: 18,000

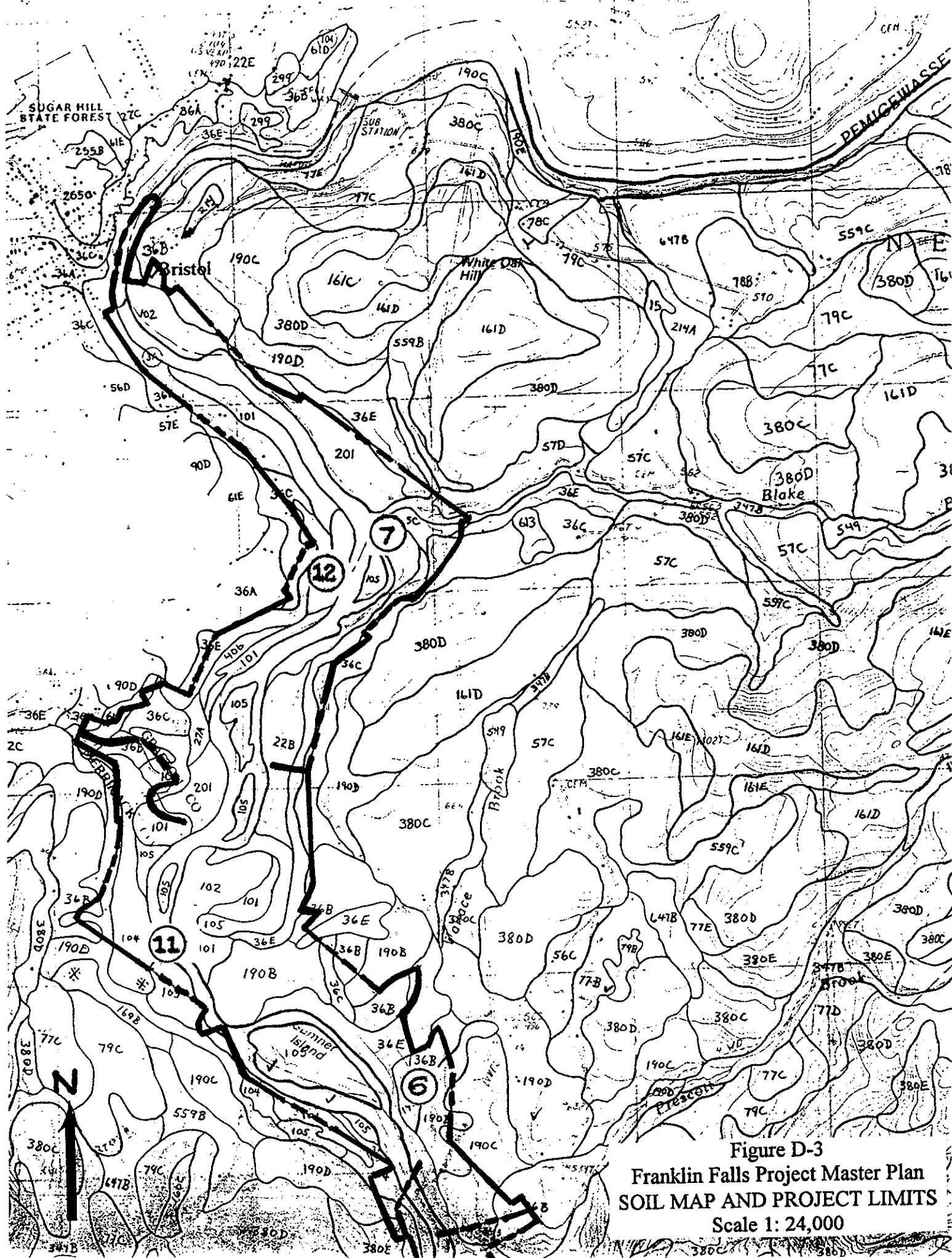


APPENDIX D

SOIL CONDITIONS AT THE FRANKLIN FALLS PROJECT FOR RECREATIONAL DEVELOPMENT







RECREATIONAL DEVELOPMENT
Franklin Falls

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|---|---|--|--------------------|--|
| 27B:
Groveton----- | Slight | Slight | Moderate:
slope | Slight | Moderate:
droughty |
| 56B:
Becket----- | Moderate:
wetness,
percs slowly | Moderate:
wetness,
percs slowly | Moderate:
slope,
small stones,
wetness | Slight | Moderate:
large stones,
droughty |
| 56C:
Becket----- | Moderate:
slope,
wetness,
percs slowly | Moderate:
slope,
wetness,
percs slowly | Severe:
slope | Slight | Moderate:
large stones,
droughty,
slope |
| 56D:
Becket----- | Severe:
slope | Severe:
slope | Severe:
slope | Moderate:
slope | Severe:
slope |
| 57E:
Becket----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Severe:
slope | Severe:
droughty,
slope |
| 61D:
Tunbridge----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Moderate:
slope | Severe:
slope |
| Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
large stones,
slope,
small stones | Moderate:
slope | Severe:
slope,
depth to rock |
| Rock Outcrop. | | | | | |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|------------------------------------|------------------------------------|---|--------------------|--------------------------------------|
| 61E: | | | | | |
| Tunbridge----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Severe:
slope | Severe:
slope |
| Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
large stones,
slope,
small stones | Severe:
slope | Severe:
slope,
depth to rock |
| Rock Outcrop. | | | | | |
| 90B: | | | | | |
| Tunbridge----- | Slight | Slight | Moderate:
slope,
small stones,
depth to rock | Slight | Moderate:
depth to rock |
| Lyman----- | Severe:
depth to rock | Severe:
depth to rock | Severe:
small stones,
depth to rock | Slight | Severe:
depth to rock |
| 90D: | | | | | |
| Tunbridge----- | Severe:
slope | Severe:
slope | Severe:
slope | Moderate:
slope | Severe:
slope |
| Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
slope,
small stones,
depth to rock | Moderate:
slope | Severe:
slope,
depth to rock |
| 90C: | | | | | |
| Tunbridge----- | Moderate:
slope | Moderate:
slope | Severe:
slope | Slight | Moderate:
slope,
depth to rock |
| Lyman----- | Severe:
depth to rock | Severe:
depth to rock | Severe:
slope,
small stones,
depth to rock | Slight | Severe:
depth to rock |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|--|--|--|-------------------------------------|---|
| 2558: | | | | | |
| Monadnock----- | Moderate:
large stones,
small stones | Moderate:
large stones,
small stones | Severe:
large stones,
small stones | Slight | Moderate:
small stones,
large stones,
droughty |
| Hermon----- | Moderate:
large stones,
small stones | Moderate:
large stones,
small stones | Severe:
large stones,
small stones | Moderate:
large stones | Severe:
droughty |
| 255C: | | | | | |
| Monadnock----- | Moderate:
slope,
large stones,
small stones | Moderate:
slope,
large stones,
small stones | Severe:
large stones,
slope,
small stones | Slight | Moderate:
small stones,
large stones,
droughty |
| Hermon----- | Moderate:
slope,
large stones,
small stones | Moderate:
slope,
large stones,
small stones | Severe:
large stones,
slope,
small stones | Moderate:
large stones | Severe:
droughty |
| 255D: | | | | | |
| Monadnock----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Moderate:
slope | Severe:
slope |
| Hermon----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Moderate:
large stones,
slope | Severe:
droughty,
slope |
| 255E: | | | | | |
| Monadnock----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Severe:
slope | Severe:
slope |
| Hermon----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Severe:
slope | Severe:
droughty,
slope |
| 298:
Pits. | | | | | |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|
| 614:
Kinsman----- | Severe:
wetness,
too sandy | Severe:
wetness,
too sandy | Severe:
too sandy,
wetness | Severe:
wetness,
too sandy | Severe:
wetness,
droughty |
| 15:
Searsport----- | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus | Severe:
excess humus,
ponding | Severe:
ponding,
excess humus | Severe:
ponding,
droughty,
excess humus |
| 22A:
Colton----- | Moderate:
small stones | Moderate:
small stones | Severe:
small stones | Slight | Severe:
small stones,
droughty |
| 22S:
Colton----- | Moderate:
small stones | Moderate:
small stones | Severe:
small stones | Slight | Severe:
small stones,
droughty |
| 22C:
Colton----- | Moderate:
small stones,
slope | Moderate:
small stones,
slope | Severe:
slope,
small stones | Slight | Severe:
small stones,
droughty |
| 22E:
Colton----- | Severe:
slope | Severe:
slope | Severe:
slope,
small stones | Severe:
slope | Severe:
small stones,
droughty,
slope |
| 27A:
Groveton----- | Slight | Slight | Slight | Slight | Slight |
| 27C:
Groveton----- | Moderate:
slope | Moderate:
slope | Severe:
slope | Slight | Moderate:
slope |
| 36A:
Adams----- | Slight | Slight | Slight | Slight | Severe:
droughty |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|-------------------------------------|-------------------------------------|--|---------------------------|-------------------------------------|
| 36B:
Adams----- | Slight | Slight | Moderate:
slope | Slight | Severe:
droughty |
| 36C:
Adams----- | Moderate:
slope | Moderate:
slope | Severe:
slope | Slight | Severe:
droughty |
| 36E:
Adams----- | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
droughty,
slope |
| 55C:
Hermon----- | Moderate:
slope,
large stones | Moderate:
slope,
large stones | Severe:
large stones,
slope,
small stones | Moderate:
large stones | Severe:
droughty |
| 57B:
Becket----- | Moderate:
percs slowly | Moderate:
percs slowly | Moderate:
large stones,
slope | Slight | Moderate:
large stones |
| 57C:
Becket----- | Moderate:
slope,
percs slowly | Moderate:
slope,
percs slowly | Severe:
slope | Slight | Moderate:
large stones,
slope |
| 57D:
Becket----- | Severe:
slope | Severe:
slope | Severe:
slope | Moderate:
slope | Severe:
slope |
| 77B:
Marlow----- | Moderate:
percs slowly | Moderate:
percs slowly | Moderate:
large stones,
slope | Slight | Moderate:
large stones |
| 77C:
Marlow----- | Moderate:
slope,
percs slowly | Moderate:
slope,
percs slowly | Severe:
slope | Slight | Moderate:
large stones,
slope |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|---|---|---|-------------------------------------|---|
| 77D: | | | | | |
| Marlow----- | Severe:
slope | Severe:
slope | Severe:
slope | Moderate:
slope | Severe:
slope |
| 77E: | | | | | |
| Marlow----- | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
slope |
| 798: | | | | | |
| Peru----- | Moderate:
wetness,
percs slowly | Moderate:
wetness,
percs slowly | Moderate:
large stones,
slope,
wetness | Moderate:
wetness | Moderate:
large stones,
wetness |
| 79C: | | | | | |
| Peru----- | Moderate:
slope,
wetness,
percs slowly | Moderate:
slope,
wetness,
percs slowly | Severe:
slope | Moderate:
wetness | Severe:
large stones,
wetness,
slope |
| 97: | | | | | |
| Greenwood----- | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus | Severe:
excess humus,
ponding | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus |
| Ossipee----- | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus | Severe:
excess humus,
ponding | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus |
| 101: | | | | | |
| Ondawa----- | Severe:
flooding | Moderate:
flooding | Severe:
flooding | Moderate:
flooding | Severe:
flooding |
| 102: | | | | | |
| Sunday----- | Severe:
flooding | Moderate:
too sandy | Moderate:
too sandy,
flooding | Moderate:
too sandy | Severe:
droughty |
| 104: | | | | | |
| Podunk----- | Severe:
flooding | Moderate:
flooding,
wetness | Severe:
flooding | Moderate:
wetness,
flooding | Severe:
flooding |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|-------------------------------------|-------------------------------------|---|--------------------|---|
| 105:
Runney----- | Severe:
flooding,
wetness | Severe:
wetness | Severe:
wetness,
flooding | Severe:
wetness | Severe:
wetness,
flooding |
| 161C:
Lyman----- | Severe:
depth to rock | Severe:
depth to rock | Severe:
large stones,
slope,
depth to rock | Slight | Severe:
depth to rock |
| Tunbridge----- | Moderate:
slope,
small stones | Moderate:
slope,
small stones | Severe:
large stones,
slope,
small stones | Slight | Moderate:
small stones,
large stones,
droughty |
| Rock Outcrop---- | Severe:
depth to rock | Severe:
depth to rock | Severe:
slope,
depth to rock | Slight | Severe:
depth to rock |
| 161D:
Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
large stones,
slope,
depth to rock | Severe:
slope | Severe:
slope,
depth to rock |
| Tunbridge----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Severe:
slope | Moderate:
small stones,
large stones,
droughty |
| Rock Outcrop---- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
slope | Severe:
depth to rock |
| 161E:
Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
large stones,
slope,
depth to rock | Severe:
slope | Severe:
slope,
depth to rock |
| Tunbridge----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Severe:
slope | Moderate:
small stones,
large stones,
droughty |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|----------------------------------|---------------------------------------|---------------------------------------|---|----------------------|--|
| 161E (con.):
Rock Outcrop---- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
slope | Severe:
depth to rock |
| 1698:
Sunapee----- | Moderate:
large stones,
wetness | Moderate:
wetness,
large stones | Severe:
small stones | Moderate:
wetness | Moderate:
small stones,
large stones,
wetness |
| 190C:
Adams----- | Moderate:
slope | Moderate:
slope | Severe:
slope | Slight | Severe:
droughty |
| Lyman----- | Severe:
depth to rock | Severe:
depth to rock | Severe:
large stones,
slope,
depth to rock | Slight | Severe:
depth to rock |
| 190D:
Adams----- | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
droughty,
slope |
| Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
large stones,
slope,
depth to rock | Severe:
slope | Severe:
slope,
depth to rock |
| 190B:
Adams----- | Slight | Slight | Moderate:
slope | Slight | Severe:
droughty |
| Lyman----- | Severe:
depth to rock | Severe:
depth to rock | Severe:
large stones,
depth to rock | Slight | Severe:
depth to rock |
| 201:
Ondawa----- | Severe:
flooding | Slight | Moderate:
flooding | Slight | Moderate:
flooding |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|-------------------------------------|-------------------------------------|---|-------------------------------------|---|
| 214A:
Haumburg----- | Severe:
wetness,
too sandy | Severe:
wetness,
too sandy | Severe:
too sandy,
wetness | Severe:
wetness,
too sandy | Severe:
wetness |
| 295:
Greenwood----- | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus | Severe:
excess humus,
ponding | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus |
| 299:
Udorthents----- | Limitation:
variable | Limitation:
variable | Limitation:
variable | Limitation:
variable | Limitation:
variable |
| 347A:
Lyme----- | Severe:
wetness | Severe:
wetness | Severe:
small stones,
wetness | Severe:
wetness | Severe:
wetness |
| Moosilauke----- | Severe:
wetness | Severe:
wetness | Severe:
wetness | Severe:
wetness | Severe:
wetness |
| 3478:
Lyme----- | Severe:
wetness | Severe:
wetness | Severe:
small stones,
wetness | Severe:
wetness | Severe:
wetness |
| Moosilauke----- | Severe:
wetness | Severe:
wetness | Severe:
wetness | Severe:
wetness | Severe:
wetness |
| 380B:
Tunbridge----- | Moderate:
small stones | Moderate:
small stones | Severe:
large stones,
small stones | Slight | Moderate:
small stones,
large stones,
droughty |
| Lyman----- | Severe:
depth to rock | Severe:
depth to rock | Severe:
large stones,
depth to rock | Slight | Severe:
depth to rock |
| Becket----- | Moderate:
percs slowly | Moderate:
percs slowly | Moderate:
large stones,
slope | Slight | Moderate:
large stones |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|-------------------------------------|-------------------------------------|---|--------------------|---|
| 380E: | | | | | |
| Tunbridge----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Severe:
slope | Moderate:
small stones,
large stones,
droughty |
| Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
large stones,
slope,
depth to rock | Severe:
slope | Severe:
slope,
depth to rock |
| Becket----- | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
slope | Severe:
slope |
| 380C: | | | | | |
| Tunbridge----- | Moderate:
slope,
small stones | Moderate:
slope,
small stones | Severe:
large stones,
slope,
small stones | Slight | Moderate:
small stones,
large stones,
droughty |
| Lyman----- | Severe:
depth to rock | Severe:
depth to rock | Severe:
large stones,
slope,
depth to rock | Slight | Severe:
depth to rock |
| Becket----- | Moderate:
slope,
percs slowly | Moderate:
slope,
percs slowly | Severe:
slope | Slight | Moderate:
large stones,
slope |
| 380D: | | | | | |
| Tunbridge----- | Severe:
slope | Severe:
slope | Severe:
large stones,
slope,
small stones | Moderate:
slope | Moderate:
small stones,
large stones,
droughty |
| Lyman----- | Severe:
slope,
depth to rock | Severe:
slope,
depth to rock | Severe:
large stones,
slope,
depth to rock | Moderate:
slope | Severe:
slope,
depth to rock |
| Becket----- | Severe:
slope | Severe:
slope | Severe:
slope | Moderate:
slope | Severe:
slope |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------------|---|---|--|-------------------------------------|--|
| 395:
Chocorua----- | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus | Severe:
excess humus,
ponding | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus |
| 400:
Udorthents,
Sandy----- | Severe:
too sandy | Severe:
too sandy | Severe:
small stones,
too sandy | Severe:
too sandy | Severe:
droughty |
| 406:
Medomak----- | Severe:
flooding,
wetness | Severe:
wetness | Severe:
wetness,
flooding | Severe:
wetness | Severe:
wetness,
flooding |
| 495:
Ossipee----- | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus | Severe:
excess humus,
ponding | Severe:
ponding,
excess humus | Severe:
ponding,
excess humus |
| 549:
Peacham----- | Severe:
ponding,
percs slowly | Severe:
ponding,
excess humus | Severe:
large stones,
excess humus,
ponding | Severe:
ponding,
excess humus | Severe:
large stones,
ponding,
excess humus |
| 559A:
Skerry----- | Moderate:
large stones,
wetness | Moderate:
wetness,
large stones | Moderate:
large stones,
wetness | Moderate:
wetness | Moderate:
large stones,
wetness |
| 559B:
Skerry----- | Moderate:
large stones,
wetness | Moderate:
wetness,
large stones | Moderate:
large stones,
slope | Moderate:
wetness | Moderate:
large stones,
wetness |
| 559C:
Skerry----- | Moderate:
slope,
large stones,
wetness | Moderate:
slope,
wetness,
large stones | Severe:
slope | Moderate:
wetness | Moderate:
large stones,
wetness,
slope |

RECREATIONAL DEVELOPMENT--Continued
Franklin Falls

| Map symbol
and soil name | Camp areas | Picnic areas | Playgrounds | Paths and trails | Golf fairways |
|-----------------------------|-------------------------|-------------------------|-------------------------------------|-------------------------|-------------------------|
| 613:
Croghan----- | Moderate:
wetness | Moderate:
wetness | Moderate:
slope,
wetness | Moderate:
wetness | Severe:
droughty |
| 647A:
Pillsbury----- | Severe:
wetness | Severe:
wetness | Severe:
small stones,
wetness | Severe:
wetness | Severe:
wetness |
| 647B:
Pillsbury----- | Severe:
wetness | Severe:
wetness | Severe:
small stones,
wetness | Severe:
wetness | Severe:
wetness |
| 689:
Adams----- | Slight | Slight | Moderate:
slope | Slight | Severe:
droughty |
| Urban Land----- | Limitation:
variable | Limitation:
variable | Limitation:
variable | Limitation:
variable | Limitation:
variable |

RECREATIONAL DEVELOPMENT

Endnote -- RECREATIONAL DEVELOPMENT

The soils of the survey area are rated in this report according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In this report the degree of soil limitation is expressed as "Slight," "Moderate," or "Severe." "Slight" means that soil properties are generally favorable and that limitations are minor and easily overcome. "Moderate" means that limitations can be overcome or alleviated by planning, design, or special maintenance. "Severe" means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in this report can be supplemented by information available in other reports, for example, interpretations for septic tank absorption fields in the Sanitary Facilities report and interpretations for dwellings without basements and for local roads and streets in the Building Site Development report.

P AREAS require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

PICNIC AREAS are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

PLAYGROUNDS require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or hardpan should be considered.

PATHS AND TRAILS for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, and not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

GOLF FAIRWAYS are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

APPENDIX E
PERTINENT CORRESPONDENCE



City of Concord, New Hampshire

ADMINISTRATION DEPARTMENT

CITY HALL • 41 GREEN STREET • 03301

DUNCAN R. BALLANTYNE
CITY MANAGER

November 12, 1996

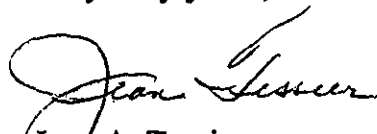
Joseph L. Ignazio, Director of Planning
Department of the Army
New England Division, Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Mr. Ignazio:

The City Manager is in receipt of your letter indicating that you are initiating studies to update the Master Plans at Franklin Falls Reservoir and Blackwater Reservoir.

Please be advised that your public notice has been posted and a copy of your communication and attached information has been forwarded to the Concord Conservation Commission and to the Central New Hampshire Regional Planning Commission. City Manager Ballantyne has suggested that I forward to you a copy of our staff listing to allow you to contact any of our Department Heads should you so desire.

Very truly yours,


Jean A. Tessier
Administrative Aide

j

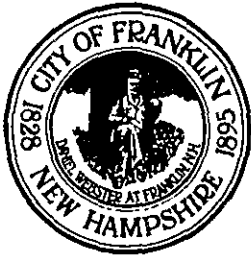
attachment

cc: Conservation Commission
Central NH Regional Planning Commission

**CITY OF CONCORD
DEPARTMENT HEADS**

| <u>DEPARTMENT</u> | <u>NAME/ADDRESS</u> | <u>PHONE</u> |
|----------------------|--|----------------------|
| ADMINISTRATION | Duncan R. Ballantyne, City Manager
Frederick E. Enderle, Assistant City Manager | 225-8570
225-8570 |
| ASSESSING | Michael J. Ryan, Dir. of Real Estate Assessment | 225-8550 |
| CODE ENFORCEMENT | C. Hamilton Rice, Code Enforcement Admin. | 225-8580 |
| ECONOMIC DEVELOPMENT | Kenneth G. Lurvey, Economic Development Dir | 225-8595 |
| ENGINEERING | Richard K. Perkins, City Engineer | 225-8520 |
| FINANCE | James R. Howard, Finance Director | 225-8560 |
| FIRE | John M. Dionne, Fire Chief
(35 Green Street) | 225-8690 |
| GENERAL SERVICES | John L. Forrestall, Director of General Services
(311 No. State Street) | 228-2737 |
| LEGAL | Paul F. Cavanaugh, City Solicitor | 225-8505 |
| LIBRARY | Louis Ungarelli, Library Director
(45 Green Street) | 225-8670 |
| PERSONNEL | Norman C. O'Neil, Personnel Director | 225-8535 |
| PLANNING | Randall P. Raymond, Planning Director | 225-8515 |
| POLICE | David G. Walchak, Chief of Police
(35 Green Street) | 225-5600 |
| PURCHASING | Joseph C. Musumeci, Purchasing Director | 225-8530 |
| RECORDS | Elizabeth Campbell, City Clerk | 225-8500 |
| RECREATION | Carolyn Tracy, Recreation Superintendent
(White Park Administration Building) | 225-8690 |
| WELFARE | Joan M. Callahan, Welfare Director
(37 Green Street) | 225-9575 |

NOTE: All departments are located in City Hall, 41 Green Street, except those which indicate otherwise (Fire, Library, Police, Welfare, Recreation, and General Services)



CITY OF FRANKLIN, NEW HAMPSHIRE

A Friendly City on the Move

CITY HALL
316 CENTRAL STREET
FRANKLIN, NH 03235

TEL: (603) 934-3900
FAX: (603) 934-7413
CITYHALL@MOE.WEBSTERSITE.COM

November 15, 1996

Mr. Charles L. Joyce
U.S. Army Corps of Engineers
Formulation Division
424 Trapelo Road
Waltham, MA 02254-9149

Dear Mr. Joyce:

Please be advised that the City of Franklin, New Hampshire, is interested in participating in the planning process in the update of the existing Master Plans of the Franklin Falls Reservoir and Blackwater Reservoir flood control projects. The City's contact person is the Planning & Zoning Administrator, Virginia Deragon.

It is our understanding that initial meetings will be held some time in February or March 1997, and interested communities will be contacted at that time.

Sincerely,

James C. Pitts,
City Manager

DEC 1996

GREATER FRANKLIN-TILTON CHAMBER OF COMMERCE
P.O. BOX 464, FRANKLIN, N.H. 03235
934-6170

December 11, 1996

Ms. Debra Stokes
Basin Manager
Franklin Falls Dam
Rte. 127, New Hampton Road
Franklin, New Hampshire 03235

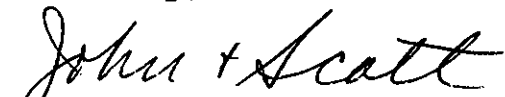
Dear Deb:

I have just looked over the request for input in the Franklin Falls Reservoir Master Plan, with attention given to the proposed boat launch sites at Shaw Cove and Piney Point.

As Vice President of the Greater Franklin/Tilton Chamber of Commerce, I would like to extend our support to these projects in your Master Plan. The Chamber of Commerce is right now involved in putting in a boat launch in Winnepesaukee River at the Franklin High School area. Once this project is completed, in the Spring of 1997, the Chamber could focus some of its energy toward your projects for river access. We at the Chamber of Commerce know how important river access is to the local area.

Looking forward to hearing from you and assisting in any way we can.

Sincerely,



John Kontoes, President and
Scott R. Marceau, Vice President
934-6170

Serving the Towns of Andover, Hill, Salisbury
Franklin, Tilton, Northfield and Sanbornton



Greater Franklin-Tilton Chamber of Commerce

P.O. Box 464 • Franklin, NH 03235 • (603) 934-6909

March 27, 1997

Department of the Army
New England Division
ATTN: Charles Joyce
Corp of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Mr. Joyce:

I was unable to attend the meeting that you had at the Franklin Middle School on the Master Plan for the Franklin Falls Reservoir but on behalf of the Greater Franklin Tilton Chamber of Commerce I would like to bring you up to date on a project that we are working on.

The Chamber of Commerce has applied to the Lakes Region Planning Commission for a grant that would allow us to do several community projects in the Franklin Area. One of these projects is to construct a safe snowmobile passage at the Franklin Falls Dam, as you are aware this has been talked about and looked at for quite a few years and money has been the issue. If we should receive this grant the money problem is taken care of.

Our thoughts on this safe passage will not only connect both sides of the river trail systems and make for a safe passage so they wouldn't have to cross on river ice but it will also allow for foot traffic to use this passage for the heritage trail in the summer months. It is also our plan to make this passage wide enough that the people working at the dam could get a tractor across if the need is ever there.

There is a real possibility that his money could be made available this year, if not we are put on the list with a three to five year wait. I hope that this can work in to your master plan and that we can work together on this project to its completion.

Serving the communities of:

Andover • Franklin • Hill • Northfield • Salisbury • Sanbornton • Tilton

Please feel free to contact me with your thoughts and suggestion on this project. I look forward to working with you Department for the betterment of the Franklin Area.

Very truly yours,

A handwritten signature in cursive script that reads "Scott Marceau".

Scott Marceau, Vice President
414 Central Street
Franklin, New Hampshire 03235
(603) 934-6170



Central New Hampshire Regional Planning Commission

Chairperson: Helen Schoppmeyer, Pittsfield
Secretary/Treasurer: Edward Kyle, Concord

Vice Chairperson: George Howe, Wilmot
Executive Director: Bill Klubben

July 8, 1997

U. S. Army Corps of Engineers
New England District
ATTN: Mr. Charles L Joyce (Planning Branch)
424 Trapelo Road
Waltham, MA 02254-9149

Dear Mr. Joyce:

Thank you for the opportunity to review the Master Plan Draft for the Franklin Falls Project.

Overall, I find the Draft to be well-written, and even readable from a non-Corps point of view. There is some repetition of phrasing, especially in the individual compartmental objective section; however, this cannot be avoided since the scope of the Master Plan is broad, and all-inclusive.

I have indicated various grammatical inconsistencies on the document. Other than these, and a few layout suggestions, I think the Plan is well put together. I am particularly pleased that the Resource Development Plans are so inclusive of the public input from the hearings. I look forward to seeing these plans more fully detailed, and perhaps recommended for implementation, in the OMP.

Again, thank you for allowing me to be part of the Master Plan update process. It has been fascinating. If there is any way CNHRPC could help you publicize your development opportunities, with an eye towards procuring public and/or private groups to assist in implementation, please let us know. We would be pleased to assist in any way possible.

Very truly yours,

Patricia R. Welch
Administrative Assistant

Allenstown
Boscawen
Bow
Bradford
Canterbury
Chichester
Concord
Deering
Dundarton
Epsom
Henniker
Hillsborough
Hookinton
Loudon
Pembroke
Pittsfield
Salisbury
Sutton
Warner
Webster
Wilmot
Merrimack
County





STATE OF NEW HAMPSHIRE
DEPARTMENT of RESOURCES and ECONOMIC DEVELOPMENT
DIVISION of FORESTS and LANDS

172 Pembroke Road P.O. Box 1856 Concord, New Hampshire 03302-1856

ROBB R. THOMSON
Commissioner

603-271-2214
FAX: 603-271-2629

PHILIP A. BRYCE
Director

July 14, 1997

U.S. Army Corps of Engineers
New England District
ATTN: Mr. Charles L. Joyce (Planning Branch)
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Mr. Joyce:

The letter to Commissioner Robb Thomson from Mr. Richard Reardon, Chief, Engineering/Planning Division requesting comments on the draft 1977 Master Plan for the Franklin Falls Project has been referred to me. As you know this department (DRED) has been licensee for the management of fish, wildlife and forest resources on the project for 47 years, and since 1954 at Blackwater and 1964 at Hopkinton Everett. Consequently, the State of New Hampshire has a large investment in these valuable resources.

Our comments fall into several categories as follows:

Reservoir Management

On page 11, first paragraph, reference to DRED lease should be changed to DRED license. Second sentence should be replaced with the following, "The DRED license is for fish and wildlife, forest management and other natural resource purposes for the Franklin Falls, Blackwater, and Hopkinton Everett Projects".


Page 11, replace the second paragraph with the following, "DRED administers the license under the principles of forest sustainability as recommended by the RVFMP manual giving consideration to all resources and amenities provided by the forest: timber, water and scenery; trees, shrubs and herbaceous plants, soil bacteria, fungi and nutrients; wildlife and insects. It requires trade-offs and compromise among competing uses and the balancing of individual and societal needs, rights and responsibilities. This is accomplished with the assistance of a State Lands Management Team consisting of the Division of Parks and Recreation and Bureau of Trails, Division of Forests and Lands (Forest Management Bureau and Natural Heritage Inventory, Forest Protection Bureau, State Forest Nursery), and the Division of Historical Resources. This Team is a multi-agency organization that provides coordinated and inter-disciplinary resource management assistance

Forest Protection (603) 271-2217
Forest Management (603) 271-3456



Land Management (603) 271-3456
Information & Planning (603) 271-3457

Natural Heritage Inventory (603) 271-3623

TDD ACCESS: RELAY NH 1-800-735-2964  recycled paper

DIVISION OF FORESTS AND LANDS 603-271-2214

on all state-owned forest lands under DRED's jurisdiction including Franklin Falls, Hopkinton Everett and Blackwater Projects".

Replace the last paragraph with the following, "DRED manages all lands under their jurisdiction guided by the principles of forest sustainability detailed in the RVFMP manual. The RVFMP manual provides practical guidelines for sustainable forest management practices to maintain the structure, function and composition of forest ecosystems; and meet the diverse needs of the human community".

Abbreviations

Add RVFMP to abbreviations for "Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire", 1997 by the New Hampshire Division of Forests and Lands, DRED; and, Society for the Protection of New Hampshire Forests.

Add DF&L to abbreviations for the New Hampshire Division of Forests and Lands (DRED).

Revise NHNHIP abbreviation to NHIP for the New Hampshire Natural Heritage Inventory Program, Division of Forests and Lands (DRED).

Add SHPO to abbreviations referenced on page 45.

Recreation

Under our license, recreation developments are limited to providing and maintaining public water access (license p.3, #7). Recreation is used freely throughout the draft master plan implying greater involvement by DRED which would require a new license. The recreation objectives starting on page 45 should indicate Corp's responsibility; objective (f) should reference the New Hampshire Fish and Game Department responsibility with regard to fish and pheasant stocking programs. The Fish and Game Department is a separate state agency with no responsibility or authority under DRED's license.

All-Terrain Vehicles

Page 16, last sentence, revise as follows, "All-terrain vehicles (ATV's) and trailbikes are not allowed on project lands except in designated areas¹, by officials in the performance of their duties, and by persons with disabilities with written permission". State and federal law requires reasonable accommodation for people with disabilities which may require use of an atv as might search and rescue, law enforcement and other duties.

Roads and Infrastructure

With the exception of Smith River Bridge on page 39, construction, reconstruction and maintenance of roads and property infrastructure is

¹ Reference to the multi-use trail system at Hopkinton-Everett

noticably absent from the draft. Infrastructure is necessary for the Corps to comply with federal laws, and for DRED to carry out license obligations.

It is this department's position that routine maintenance of existing permanent roads and construction of temporary access necessary to carry out our license obligations is DRED's responsibility. Routine maintenance includes gravel, grading, ditching, and roadside mowing. Construction of new, permanent roads and reconstruction of infrastructure, such as the repair of the Smith River Bridge, is the responsibility of the Corp's. There is historic precedent to bear this out.

Historic Resources

Page 33, Identified Historic Sites, second paragraph, second sentence should read as follows, "Forest management activities under the authority of the DRED license will be carried out in accordance with federal and state law. Activities may include cutting of underbrush and small trees ..." etc.

Ecosystem Management

Page 44, Natural Resources, objective (h) add the word "natural" between greatest and diversity to read ... greatest natural diversity ... This wording makes the objective consistent with ecosystem management principles identified under Project Purpose item (a), page 2.

Timber Management/Sustained Yield

Page 13, first paragraph, revise the first sentence to read as follows, "Timber production on project lands is administered under DRED's license as part of a multiple-use management program guided by the principles of sustained yield in compliance with New Hampshire state law".

Page 23, first paragraph, revise the first sentence as follows, "DRED's forest management program is based on consideration of all resources and benefits guided by the principles of sustained yield".

Page 23, second paragraph, revise the last sentence as follows, "Commercial timber harvesting will be conducted according to sustainable forestry practices recommended in the RVFMP manual.

Wildlife

Page 28, second paragraph, third sentence, replace "State of New Hampshire" with "New Hampshire Fish and Game Department" releases pheasants ...

Page 28, fourth paragraph, revise the first sentence as follows, "The wildlife management program objectives are to provide for the greatest diversity of natural habitat to support species indigenous to the area compatible with the operation of the facility". This is consistent with the stated wildlife objective (1) on page 44 which refers to maximizing wildlife carrying capacity.

Page 44, objectives (i), (j), and (k) should reference coordination through

DRED with the New Hampshire Fish and Game Department.

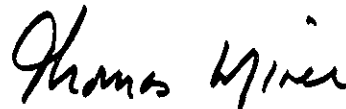
Fish (riparian zone management)

Page 29, last paragraph, reference to a 300' buffer zone without specific operating guidelines is confusing and perhaps inadequate. We recommend a 600' riparian management zone consistent with the RVFMP manual in addition to timber harvesting restrictions required by New Hampshire State law. The RVFMP manual recommends specific management guidelines for the protection of water quality, flood control, groundwater discharge, aquatic and terrestrial wildlife habitat, and recreation and scenic opportunities. New Hampshire RSA 227-J:9 restricts the cutting of timber adjacent to waterbodies.

The RVFMP manual is distributed by the Society for the Protection of New Hampshire Forests. We have enclosed an order form for your use.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in dark ink, appearing to read "Thomas Miner". The signature is fluid and cursive, with the first name "Thomas" being more prominent than the last name "Miner".

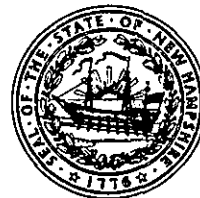
Thomas Miner, Administrator
Forest Management Bureau

cc: Robb Thomson, Commissioner



State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

64 No. Main Street, P.O. Box 2008, Concord, NH 03302-2008
(603) 271-3406 FAX (603) 271-7894



July 23, 1997

CHARLES JOYCE
US ARMY CORPS OF ENGINEERS
NE DISTRICT
424 TRAPELO RD
WALTHAM MA 02254-9149

Dear Mr. Joyce:

The Department of Environmental Services has reviewed the draft master plan for the Franklin Falls Project and has no comments to offer at this time. Please feel free to contact me if you need additional response.

Sincerely,

Kenneth Stern
Chief Water Resource Engineer

KJS/kjs/h:/kjs/joyce